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THE

PENNY CYCLOPÆDIA

OF

THE SOCIETY

FOR THE

DIFFUSION OF USEFUL KNOWLEDGE.

VOLUME III.

ATHANARIC——BASSANO.

LONDON:
CHARLES KNIGHT, 22, LUDGATE STREET.

MDCCCXXXV.

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ATHA'NARIC, a chief or judge of the Goths who had settled themselves on the borders of the Roman empire, north of the Danube, about the middle of the fourth century. Having aided Procopius in his rebellion, the Goths were attacked and defeated by the emperor Valens in 369. They then sued for peace, and an interview took place on this occasion between Valens and Athanaric, in a boat in the middle of the Danube. Some years after, the Huns having come down from the banks of the Volga, threatening the territory of the Goths, Athanaric opposed the barbarians at the passage of the river Dniester, but he was surprised, and obliged to retire with a part of his followers into the fastnesses of the Carpathian mountains. The rest of the Goths, under Fritigern, threw themselves on the empire for protection, and were allowed to cross the Danube and settle in Thrace. They afterwards quarrelled with the emperor Valens, whom they defeated and killed in the battle of Adrianople, in August, A.D. 378. After the death of Fritigern, and the elevation of Theodosius to the empire, Athanaric, who had remained in his fastnesses, was elected king of the Goths. He then concluded a peace with Theodosius, and repaired to Constantinople, where he was received with great pomp, in January, A.D. 381; but having surfeited himself at the emperor's table, he soon after died, and was buried with great magnificence by order of Theodosius. (Gibbon, c. xxvi.)

ATHANAS (Leach), a genus of the long-tailed crustaceans, bearing much resemblance to *Lysmata* (Risso), from which it differs in having the first pair of feet of larger size than the rest: while the second pair of *Lysmata* are the largest. It is small in size, and has been taken on the south coast of England and on the shores of France.

ATHANASIAN CREED, or *Symbolum Athanasianum*, which is also called from the words of its beginning the *Symbolum Quicunque*, is not extant in the works of Athanasius (which contain, vol. i. part ii. p. 98, *seq.* another creed, stating the same doctrine, but differently expressed), and is not quoted by contemporary writers. It seems to refer to the later Nestorian and Eutychian controversies; has a Latinized character, or it sounds in Greek like a translation from a Latin original, and appears to contain phrases taken from the writings of Augustine, the bishop of Hippo. Hence we conclude that it was composed about the middle of the fifth century. Some have supposed that Vincentius Lerinensis; others, that Venantius Fortunatus; others again, that Hilarius Arelatensis wrote what is now called the Athanasian creed. According to Paschasius Quesnel, Virgilius of Tapsus, who has been considered to have interpolated the passage, 1 John. v. 7, was also the author of the Athanasian creed.

From the seventh century we find that the Athanasian creed has been considered in the western churches to be the most genuine document of the ecclesiastical trinity. It is remarkable that the Athanasian creed was not introduced by the authority of ecclesiastical councils, nor by any external compulsion, but was generally received by the free conviction of the churches that it contained a correct exposition of christian doctrine, and that it was necessary to give some ecclesiastical definitions of the statements of the New Testament. This important document may illustrate the difference between the solution of an historical question concerning authenticity, and one involving the internal truth of its dogmatical contents. (See Cave, *Historia Litter.*, vol. i. p. 189; Oudin, *de Script. Eccles.*, vol. i. p. 312; Fabricius, *Biblioth. Gr.*, vol. v. p. 297; Montfaucon, *Praef. ad Op. Athanasii*; and Schröckh, *Kirchengesch.* vol. xii. pp. 93-232.) Sherlock has also written on the Athanasian creed. Dr. Waterland supposed it, without much foundation, to have been made by Hilary, bishop of Arles; and Archbishop Tillotson said, 'The church were well rid of it.' (See Clarke's *Succession of Sacred Literature*: London, 1830, p. 271.) A defence of the Athanasian creed on physiological principles, by Thomas William Chevalier, Esq., has been printed in the *Morning-Watch*, and published separately: London, 1830. In this dissertation a surgeon refutes the attack of some clergymen.

Before the close of the sixth century, the Athanasian Creed had become so well known, that comments were written upon it; it was not, however, then styled the Athanasian Creed, but simply the Catholic Faith. Before the expiration of another century, it had obtained the appellation which it has since preserved. It is supposed to have received the epithet 'Athanasian,' on account of its reference to the subjects of the controversy between the orthodox and the Arians. But Athanasius himself confined his exertions to the establishment of the doctrine of the incarnation, and seems not to have insisted much upon the doctrines relative to the Spirit.

This creed was used in France about the year 850; was received in Spain about a hundred years later, and in Germany about the same time. It was both said and sung in England in the tenth century, was commonly used in Italy at the expiration of that century, and at Rome a little later.

Many learned men, especially Cardinal Bona, Petavius, Bellarmine, and Rivet, are of opinion that the creed which bears the name of Athanasius was really the production of that bishop. Baronius maintains this opinion, and suggests that it was composed by Athanasius when at Rome, and offered to Julius as a confession of his faith.

The controversy on the Athanasian creed has produced in England a great number of works: the most learned and impartial work on this subject is, 'A Critical History of the Athanasian Creed,' by Daniel Waterland, D.D.; the second edition, corrected and improved: Cambridge, 1728.

ATHANA'SIUS, ST., surnamed *Apostolicus*, was one of the most noted divines and theological controversialists of the fourth century. The ecclesiastical history of that period is chiefly occupied with the narration of events in which he either bore a part or was closely concerned.

Athanasius was born at or near Alexandria, about the close of the third century. The Benedictines of St. Maur give A.D. 296 as the year of his birth. Elmacin relates that the

mother of Athanasius belonged to a noble Alexandrine family, and that she was an idolater. She gave to Athanasius a good education. On her endeavouring to persuade her son to marry, he would not listen to her advice. The mother then assailed his chastity by introducing harlots into his apartments; but Athanasius flogged them and drove them away. The mother now invited a Sabæan magician to dine with him; but this sorcerer told her that Athanasius was already a Galilæan beyond the power of magic, and that he would become a great man. After hearing this, the mother introduced Athanasius to the Patriarch Alexander, and was baptized with her son. The mother died, and Athanasius, like another Samuel, remained with the patriarch. Rufinus, in his continuation of the ecclesiastical history of Eusebius, relates, that Athanasius, while yet a boy, baptized other boys in play, and that this first introduced him to the notice of Alexander, who became bishop of Alexandria, A.D. 313, and was the nineteenth patriarch of that see. This statement is supported by the Benedictine editors of the works of Athanasius, by Tillemont, J. A. Schmidt, S. Basnage, and others, but is rejected by many on the ground of there being an anachronism in assigning the childhood of Athanasius to the period of Alexander's possession of the bishopric.

The writings of Athanasius prove that he received a learned education, and that he was acquainted with both the theological and profane literature of his age; though Gregorius of Nazianzus praises the contempt of Athanasius for heathen learning. During some part of his earlier life, Athanasius, attracted by the great reputation of St. Anthony, led for a time an ascetic life with that celebrated anchorite. In whatever way the notice of Alexander was first attracted, Athanasius early conciliated, and by his abilities retained, the favour of that prelate, who raised him rapidly from the lower ecclesiastical degrees to the office of deacon, and employed him as an assistant in his literary undertakings. In the Synod held at Alexandria, A.D. 321, against the Arians, Athanasius occupied the fourth place among the deacons of the Alexandrine church. In A.D. 325 he was archdeacon, and exerted considerable influence over his bishop, Alexander, and the proceedings at Nicæa. In that synod he represented his bishop against the Arian party. Here Athanasius laid the foundation of his fame by his powerful refutation of Arianism; and notwithstanding his youth, he was from this time considered the first champion of the orthodox church. Alexander died in April, A.D. 326; and in the same year Athanasius was unanimously chosen bishop of Alexandria by the other orthodox bishops and by the inhabitants of the city. It is an established fact, that in those days the clergy and laity concurred in the choice of ecclesiastical superiors. It is related that Athanasius, anticipating that he might be elected, concealed himself during six months, and only re-appeared when he expected that the vacant see would be already filled. According to the Arian statements, Athanasius was consecrated bishop with illegal secrecy. It is probable that the numerous parties of the Meletians and Arians opposed the appointment of Athanasius; yet it is certain that at this period the orthodox party preponderated. A synodal report, which states the particulars of the bishops' proceedings in the choice of the new bishop of Alexandria, still exists, and has been appended to the works of Athanasius.

Athanasius, as the twentieth metropolitan of Alexandria and Patriarch of eastern Africa, obtained an extensive sphere for exertion in Egypt, Libya, and the Pentapolis, the first rank after the Roman bishop, and the highest ecclesiastical dignity in the East; but he was surrounded by bitter opponents, against whom he endeavoured to put in execution the decrees of Nicæa.

About A.D. 326 (according to some reckonings: see ABYSSINIA, vol. i. p. 58), after the conversion of the Ethiopians to christianity, Athanasius sent Frumentius, who was instrumental in their conversion, as their first bishop. But the joy which this event occasioned to Athanasius was marred by the increase of power obtained at this time by the Arian party. Among the most formidable opponents of Athanasius was Eusebius, bishop of Nicomedia, who having been previously deposed on account of his Arian sentiments, was reinstated A.D. 328, and, in conjunction with the Meletians, obtained considerable influence at the court of Constantine. Athanasius declined to comply with the proposal of Eusebius to re-admit Arius into church communion, and resisted the threats of the emperor by referring to the Nicene decrees. From this time the Meletians and Eusebians sought the ruin of Athanasius. In A.D. 332 they accused him before the emperor of having, without the imperial sanction, imposed, for the benefit of the churches, taxes upon linen; of affording pecuniary aid to the rebels; of ordering, during a visitation of the Mareotic congregations, that the chalice of the Meletian bishop, Ischeras, should be broken, and that his liturgical volumes should be burned; of having caused the Meletian bishop Arsenius to be murdered; and of having employed the hand of Arsenius, when severed from his body, for magical purposes. Athanasius refuted the first two accusations by witnesses, proved that Ischeras was not a legitimately ordained priest at the time of this episcopal visitation, and that his chalice was not an ecclesiastical chalice. His success in refuting the last charge was complete: Arsenius was still alive, and with two hands. But this acquittal, and the imperial letters, which fully acknowledged his innocence and justified his proceedings, were insufficient to defend him against new attacks. The Eusebians induced the emperor, A.D. 334, to cite him before a synod at Cesaræa; but Athanasius refused to appear before this tribunal, in which his opponents were at the same time accusers and judges. The emperor, much displeased by his disobedience, commanded him to appear before a synod at Tyre, A.D. 335, to which Athanasius went with forty-nine bishops. The former charges were repeated, but the presence of Arsenius again disproved the accusation of murder. Fresh crimes were now imputed to him: a woman with whom it was alleged that the bishop of Alexandria had committed fornication, was brought forward, but when confronted with Athanasius, she mistook for the bishop a friend who assisted in his defence, and thus committed herself as a false accuser. Finding that charges from which he had already been acquitted were perpetually revived, and that new accusations were invented, he considered even his life to be endangered; and therefore, before the accusation about the broken chalice had been fully investigated, and during the absence of the Arian bishops sent to Mareotis to examine into the charges relative to Ischeras, he secretly retired, under the protection of the imperial plenipotentiary, from Tyre to Constantinople. The synod of Tyre, notwithstanding the protestation of the Egyptian and Mareotic clergy, decreed the deposition and excommunication of Athanasius, and his exile from Alexandria: they grounded their sentence on his disobedience to the commands of the emperor; want of respect to the synod; and alleged desecration of ecclesiastical vessels. The emperor, desirous of doing justice to the bishop of Alexandria, cited the judges of Tyre to account in his own presence for the sentence which they had pronounced. The bishops pleaded in justification of their sentence, and induced the emperor to banish Athanasius to Treves, A.D. 336. This sentence was procured by means of a new accusation against him, that of having impeded the exportation of corn from Alexandria to Constantinople. Athanasius himself states that the emperor exiled him in order to protect him from the rage of his enemies. The bishopric of Alexandria remained vacant by the express command of the emperor.

Athanasius was well received at Treves by Constans; and here he had many opportunities of strengthening his party in the West, and frequent means of communicating with Egypt. Athanasius wrote at this time a letter to the bishop Serapion on the death of Arius. The Alexandrians deeply mourned the absence of their much-revered bishop; they pathetically addressed the emperor, pleading for his restoration—an appeal which was seconded by the representations of the celebrated and esteemed hermit Anthony. The banished bishop was recalled, and restored to his see, A.D. 338, after having travelled through Germany, Pannonia, Mœsia, and Thrace, to Constantinople; and from thence through Bithynia, Cappadocia, Syria, and Palestine, to Egypt. Constantine had conceded this point shortly before his death, but the actual restoration of Athanasius did not take place until the reign of his sons. The inhabitants of Alexandria received their long-absent bishop with joyful enthusiasm, but found that the demonstration of their grateful affection could not induce him to relax the reins of discipline, and that his past misfortunes had not taught him, in the least degree, to compromise the cause which he had espoused. Athanasius deposed throughout his own patriarchate the Arian bishops, and put orthodox prelates in their place. By his influence he also effected similar changes in other bishoprics. The Eusebians protested

against the return of Athanasius, alleging that the decree of the synod of Tyre remained unrepealed. They revived the former accusations, and added the charge of having sold, for his own benefit, the grain and corn belonging to the church and the poor. They also imputed to his instigation the popular disturbances which took place on his return. The Eusebian party, intending to embarrass Athanasius still further, brought back to Alexandria the Arian bishop Pistus, whom Alexander had exiled; and finding that the new Roman emperor of the East, Constantius, sided with them, threatened more violent measures. Nearly a hundred of the bishops in the patriarchate of Alexandria appeared at a synod summoned by Athanasius, and refuted in a synodal letter the accusations of the Eusebians, A.D. 340. They bore a noble testimony in his favour, and called upon the whole of Christendom to rise in his defence. Athanasius despatched messengers to Julius, bishop of Rome; and the Eusebians at the same time sent delegates to Julius, requesting him to recognise Pistus. Thus were the Roman and other western churches involved in the Athanasian contest.

Athanasius went again to Rome in the year 340, accompanied by a few monks, in order to attend the synod convened by Pope Julius. Antony, the esteemed friend and revered instructor of the early manhood of Athanasius, having collected, about the year 305, a society of religious recluses from among the hermits of Africa, associated them into a community settled in Egypt, and regulated their mode of life by civil and religious rules. Baronius maintains, and his opinion is the most generally received, that it was Athanasius, who, about the year 340, transplanted the regular monastic institutions from Egypt into Italy, and erected the first monastery at Rome (Mabillon, *Præf. ad Acta Sanctorum: ord. Benedict.* tom i. p. 9, &c.) Other opinions assign different localities to the first European monastic community. It is however probable that, during this visit of Athanasius to Rome, he excited there the spirit of monasticism. But, while approving the practice of monasticism, Athanasius did not sanction or overlook its abuses. Amongst many instances of his discreet interference and counsel, he thus writes to a monk who had been appointed to a bishopric, but who sought to avoid the labours of the office:—'A bishop may both abstain from wine and fast frequently. We have known both fasting bishops and feasting monks. We have known both bishops who abstained from wine, and monks who indulged in it. Many among the bishops have not entered into matrimony; while, on the contrary, many monks have become fathers of children. Let every one, therefore, fight how he will the good fight.' (*Ep. ad Dracont.*)

Athanasius also seriously refuted the indiscreet opinions of some on the subject of matrimony, and assigned to each state of celibacy and matrimony its own place in the ordinance of God. Many persons were greatly offended by this, and seriously blamed Athanasius.

Julius had declared himself in favour of Athanasius, but, in compliance with the request of the Eusebian delegates, he appointed a synod to be held at Rome. But before the assembling of this synod the Eusebians had convened another at Antioch, A.D. 341, in which it was declared that Athanasius was for ever excluded from the bishopric of Alexandria. They offered the vacant see first to Eusebius of Emesa: and on his declining the offer, it was bestowed upon Gregory of Cappadocia, who, assisted by the imperial troops, expelled Athanasius (who had returned from Rome, and held private meetings with his followers) from Alexandria about Easter, A.D. 341, and committed many acts of violence against the Homoousiasts. Philagrius, the Roman governor of Alexandria, combining his efforts with those of Gregory, sought the life of Athanasius, who fled for refuge to Rome. In the same year Julius held at Rome a synod of fifty bishops, which rejected all the accusations against Athanasius, and re-admitted him, with high encomiums, into church communion. Julius wrote energetically to the Eusebian bishops in behalf of Athanasius, but in vain; and even after the death of Eusebius, his party and that of the Arians still retained so much power as to render impracticable the return of Athanasius to Alexandria. The cause of Athanasius was the more encumbered with difficulties by the tumultuous manner in which his adherents demanded his restoration. The ex-primate of Alexandria while resident at Rome applied to Constans, the emperor of the west, for protection. Constans several times granted him a private audience. The cause of Athanasius was espoused by most of the occidental prelates, and the endeavours of the Eusebians to obtain a compromising peace were defeated. Athanasius would agree to no peace which was not based upon the acknowledgment of the Nicene Homoousios. By his perseverance in this demand he obtained the reputation of a martyr for orthodoxy. Athanasius dreaded compromise more than schism.

On the demand of Constans, a synod was convened at Sardica in the dominions of the Western Emperor, but on the borders of the two imperial territories, A.D. 346. Ninety-four bishops of the West and seventy-six bishops from the East assembled there. The friends of Athanasius claimed that he should take his seat and vote among the congregated bishops. The orientals required that he should appear as a yet unacquitted defendant. Upon this point of dispute the contest ran so high, that most of the eastern bishops left Sardica and retired to Philippopolis. The orthodox bishops remained at Sardica, and acquitted Athanasius of the charges brought against him. The bishops assembled at Philippopolis, as a retaliation for their own excommunication and deposition pronounced by the adherents of Athanasius, excommunicated the bishops at Sardica. The synod at Sardica will be always remembered as having first established and promulgated the canons recognising the right of the bishop of Rome to act as arbitrator in all cases concerning the deposition of bishops.

Athanasius remained during a considerable time at Aquileia, and obtained much influence with the emperor Constans. By means of strong threats, that prince induced his brother Constantius to re-instate the orthodox bishops who had been exiled by the Eusebians. Athanasius, after a thrice-repeated invitation, repaired to the court of the eastern empire, the imperial sincerity being attested by the officers of state, and evidenced by the public and imperative orders which were issued for the recall of all the banished adherents of Athanasius, the restitution of their privileges, and the acknowledgment of their innocence, accompanied by the reversal of all illegal proceedings of the adverse party. Constantius received the venerable primate with seeming pleasure and approbation, asking from him the single concession of permission to the Arians to hold public worship in one church in Alexandria. Athanasius replied to this request by the nullifying promise to grant it on condition that a similar liberty should be allowed to the orthodox party in every city throughout the empire.

Athanasius, on his return to Alexandria, passed through Jerusalem, and was there re-admitted into church communion by sixteen bishops. In his progress he deposed the Arian bishops, and substituted in their room ecclesiastics of the orthodox faith. On his arrival at Alexandria he was welcomed with the most joyful enthusiasm. The bishops Ursacius and Valens recanted their accusations, and others of the inimical prelates sought his favour and forgiveness. The powerful protection of Constantius procured him so much tranquillity that he was able to convene a synod at Alexandria, in which the decrees of Sardica were confirmed.

The year 351 was marked by the untimely death of Constans. The hatred to Athanasius, which the power of Constans had restrained, again broke forth with redoubled force, after all fear from the pretensions of Magnentius had subsided. Athanasius was charged with having excited enmity between the imperial brothers. This charge seemed to have some foundation, as Constans had, in behalf of Athanasius, interfered with the government of Constantius. While a rival disputed the empire of the west, Constantius appeared as the friend of Athanasius; but as soon as the countenance of the venerated bishop of Alexandria ceased to be of importance to the policy of Constantius, Athanasius found that he ranked as both the personal and the theological enemy of the emperor.

The sentence of Tyre could still be urged against him; but, anxious for the consent of the western church, Constantius summoned a synod at Arles, A.D. 353, and another, A.D. 355, of 300 bishops, at Milan. 'Corruption, the most infallible symptom of constitutional liberty, was successfully practised: honours, gifts, and immunities were offered and accepted as the price of an episcopal vote; and the condemnation of the Alexandrian primate was artfully represented as the only measure which could restore the peace and union of the catholic church. The friends of Athanasius were not however wanting to their leader or to their cause. With a manly spirit, which the sanctity of their character rendered less dangerous, they maintained in pub-

lic debate and in private conference with the emperor, the eternal obligation of religion and justice. They declared that neither the hope of his favour nor the fear of his displeasure should prevail on them to join in the condemnation of an absent, an innocent, a respectable brother. They affirmed, with apparent reason, that the illegal and obsolete decrees of the council of Tyre had long since been tacitly abolished by the imperial edicts, the honourable re-establishment of the archbishop of Alexandria, and the silence or recantation of his most clamorous adversaries. They alleged that his innocence had been attested by the unanimous bishops of Egypt, and had been acknowledged in the councils of Rome and Sardica by the impartial judgment of the Latin church. They deplored the hard condition of Athanasius, who, after enjoying so many years his seat, his reputation, and the seeming confidence of his sovereign, was again called upon to confute the most groundless and extravagant accusations. Their language was specious; their conduct was honourable; but in this long and obstinate contest, which fixed the eyes of a whole empire on a single bishop, the ecclesiastical factions were prepared to sacrifice truth and justice to the more interesting object of defending or removing the intrepid champion of the Nicene faith. The Arians still thought it prudent to disguise in ambiguous language their real sentiments and designs; but the orthodox bishops, armed with the favour of the people, and the decrees of a general council, insisted on every occasion, and particularly at Milan, that their adversaries should purge themselves from the suspicion of heresy, before they presumed to arraign the conduct of Athanasius.' (Gibbon, chap. xxi.)

'The councils of Arles and Milan were not dissolved till the archbishop of Alexandria had been solemnly condemned and deposed by the judgment of the western as well as of the eastern church. A formulary of consent was transmitted by the messengers of state to the absent bishops; and all those who refused to submit their private opinion to the public and inspired wisdom of the councils of Arles and Milan were immediately banished by the emperor, who affected to execute the decrees of the catholic church. Among those prelates who led the honourable band of confessors and exiles, Liberius of Rome, Osius of Cordova, Paulinus of Treves, Dionysius of Milan, Eusebius of Vercellæ, Lucifer of Cagliari, and Hilary of Poitiers, may deserve to be particularly distinguished. The eminent station of Liberius, who governed the capital of the empire; the personal merit and long experience of the venerable Osius, who was revered as the favourite of the great Constantine, and the father of the Nicene faith, placed those prelates at the head of the Latin church; and their example, either of submission or resistance, would probably be imitated by the episcopal crowd. But the repeated attempts of the emperor to seduce or to intimidate the bishops of Rome and Cordova were for some time ineffectual. The Spaniard declared himself ready to suffer under Constantius, as he had suffered threescore years before under his grandfather Maximian. The Roman, in the presence of his sovereign, asserted the innocence of Athanasius and his own freedom. The resolution of Liberius and Osius was at length subdued by the hardships of exile and confinement. The Roman pontiff purchased his return by some criminal compliances, and afterwards expiated his guilt by a seasonable repentance. Persuasion and violence were employed to extort the reluctant signature of the decrepid bishop of Cordova, whose strength was broken, and whose faculties were perhaps impaired by the weight of a hundred years. The fall of Liberius and Osius reflected a brighter lustre on the firmness of those bishops who still adhered with unshaken fidelity to the cause of Athanasius and religious truth.' (Gibbon, *ibid.*)

The next step was to remove Athanasius himself—a purpose long held, but restrained by fear of popular resentment at the removal of a beloved and respected pastor. Even when sanctioned by the decrees of the Latin church, Constantius did not dare to give his written sanction to the order for the displacement of Athanasius. The unsigned decree could reasonably be rejected, and the bishop refused the invitation of the municipal governor to abdicate. A nominal agreement was interposed for the suspension of proceedings till the emperor's real intention should be declared; but this proved but a stratagem to lull the vigilance of the Athanasian interest. The capital was surrounded and [illegible] by the imperial troops. During four months, under the guise of zeal for religion, ravages the most horrible were carried on within the walls of Alexandria. Athanasius with difficulty saved his life by means of a rapid and secret flight. George, who was, according to Athanasius and Gregory Nazianzen, a native of Cappadocia, but who, according to Ammianus Marcellinus, was sprung from a tanner at Epiphaneia in Cilicia—a man regardless alike of religion and humanity, was placed in the episcopal chair, and caused the horrid and disgraceful scenes of bloodshed and crime which had been enacted in Alexandria to be repeated in ninety of the episcopal cities of Egypt.

During six years Athanasius evaded the pursuits of the imperial emissaries. He lived concealed chiefly among the monks of the Egyptian desert, who chose rather to die than betray their revered associate. Sometimes he approached near the towns in order to learn the proceedings of his enemies. While thus proscribed and pursued, he wrote and circulated his letters against the Arians addressed to the bishops of Egypt and Libya, and others of his controversial treatises. Gibbon has eloquently described the romantic adventures of Athanasius during this period. Athanasius was at last recalled from his seclusion by the permission given by the emperor Julian to the exiled bishops to return to their sees. The first care of Athanasius was the restoration of peace and orthodoxy to the church. He convened, A.D. 362, a synod, which offered church communion to all those bishops who, during the reign of Constantius, had been awed or seduced into the abandonment of orthodoxy: he only required that they should subscribe, and henceforward strictly adhere, to the words of the Nicene creed, receiving it as an unalterable rule of faith. By his constant and uniform labours, unwarped by prosperity and undismayed by adversity, Athanasius obtained the appellation of the 'Father of Orthodoxy.'

Many bishops gladly embraced this opportunity of forsaking the Arians and reuniting themselves with the church. This Alexandrine synod left the subject of peace with the Meletians where it found it. It condemned the pertinacious Arians and other heretics.

The power of the Arians was now so much impaired, that henceforward Athanasius had nothing to fear from them. But he suffered from the hatred of Julian, to whom the primate of Egypt had become peculiarly obnoxious.

Repenting of the indulgence which had been extended to this vigorous and uncompromising supporter of the Christian faith, Julian condemned, with severe expressions of censure, the proceedings of Athanasius, asserting that, in granting liberty to return, he had been far from intending the resumption of ecclesiastical functions. To rebuke this imputed presumption, Julian exiled Athanasius. The unpopularity, and even impolicy, of this measure, was soon proved by the complaints and appeal of the Alexandrians. But Julian was resolved: the prefect of Egypt, who delayed the sentence, was reproved, and might have found even the death of Athanasius necessary to his own safety, had not the retreat and impenetrable concealment of the bishop prevented his apprehension.

The emperor Jovian, the successor of Julian, favoured the orthodox views. He revoked the decree of Julian, and wrote a respectful letter to Athanasius, requesting instruction in the true faith. Athanasius assembled, A.D. 363, a synod at Alexandria, which replied to the emperor's letter; and himself repaired to Antioch at the invitation of Jovian.

About this time Athanasius composed several works; among others, a life of Anthony, which is still extant, but has possibly become interpolated; a work on the Incarnation of the Word of God, which sometimes bears also the title 'On the Trinity and Incarnation;' and a work on the 'Trinity and Holy Spirit,' which is extant only in a Latin edition, and is perhaps but an imitation of the manner of Athanasius.

Another change of affairs took place, on the death of Jovian, under Valens, who was a zealous Arian. Banished by this emperor also, Athanasius lived during several months in his father's tomb. But a rebellion being excited by this compulsory removal from his see, the emperor granted to Athanasius a safe residence in Alexandria, and allowed him to resume his episcopal rank and functions. Athanasius employed this season of security for the confirmation of orthodoxy. He wrote circular letters to the bishops and held a synod at Alexandria, A.D. 369. In the name of this synod, he addressed a circular letter to the African bishops, which is extant, under the title *Epistola ad Afros.* The epistle entitled

the *Epistola Catholica* of Athanasius is by some ascribed to this date; but Montfaucon doubts its authenticity. During the short remainder of his life, Athanasius lived in peace and in the possession of his bishopric. The year 372 and the month of May, A.D. 373, are both assigned as the period of his death. Papebroch, who is of the latter opinion, relates, in the *Acta Sanctorum* for the month of May, tom i., that the body of Athanasius was conveyed to Constantinople, and thence removed in the fifteenth century to Venice, and placed in the church of the nuns of the Holy Cross. He adds, that the head of the bishop is wanting at Venice, and is still the subject of dispute between two churches, one in Spain and the other in France; each asserts that it possesses the genuine head of Athanasius

The opinions entertained of Athanasius have been most contradictory. Most extol his sanctity, and some blame his obstinacy. But every impartial man must admire the greatness of his soul, the purity of his intentions, the power of his mind, the firmness of his purpose, and the unwearied activity, by which he finally triumphed over apparently insurmountable obstacles. The small stature and insignificant appearance of Athanasius did not at first sight impress beholders with the idea of internal greatness, but he was made for profound thinking, powerful speaking, and energetic action. His style is unadorned but appropriate, impressed with genius and natural eloquence He seems to have been destitute of a knowledge of the Hebrew language. and his interpretations of the Old Testament are consequently defective

The accounts given of Athanasius by the oriental writers are collected by Eusebe Renaudot in his *Historia Patriarcharum Alexandrinorum*, p 83 compare *Oriens Christianus, opera et studio* Michaelis le Quien, Parisiis, 1740, tom ii p 399 -401 All the works of Athanasius were splendidly published in three vols folio by the Benedictine Monk Bernhard de Montfaucon.

Abbas Cosmas (apud Johannem Moschum, l x c 40) says 'If you find a piece of the works of St Athanasius, copy it on your garments, if you have no paper to write upon

Among the most interesting of the works of Athanasius are his two books against the heathen the first of which contains a confutation of idolatry, and the doctrine of the true God the second treats of the doctrine of the incarnation of the Word These books against the heathen do not mention the existence of Arianism, and some have therefore conjectured that they were composed during the youth of Athanasius

The principal writings of Athanasius against the Arians are his circular to the bishops of Egypt and Libya, Apologia contra Arianos, seu Apologia Secunda, Apologia ad Imp Constantinum, Apologia de Fugâ suâ, Historia Arianorum ad Monachos, Orationes quatuor contra Arianos, Four Letters to the Bishop Serapion in defence of the Divinity of the Holy Ghost; A Letter on the Arian Synods of Ariminum and Seleuceia (in Isauria).

The epistle to the bishop Epictetus, at Corinth, and that to the bishop Adelphius, oppose the exaggerated worship of the body of Christ, but their authenticity, as well as that of the two books *De Incarnatione Domini Jesu Christi contra Apollinarem*, has been questioned Apollinaris was one of the friends of Athanasius, and Athanasius was not in the habit of insisting on complete orthodoxy, except on the immediate subject of the Arian controversy. Athanasius even defended, on the score of pastoral prudence, the bishop Basilius of Cesaræa, who abstained from giving the appellation of God to the Holy Spirit (*Epist ad Johannem et Antiochum; et Epist. ad Palladium, Opera*, ed Patav. p. 763.)

A great number of letters, tracts, comments, and narratives, the production of subsequent ages, are ascribed to him, and printed with his works; for, as the Benedictine editors observe, men are desirous to introduce their spiritual as well as their natural offspring into the families of princes.

We subjoin a list of the titles, translated into English, of the works of Athanasius, in the order in which they stand in the original Greek accompanied by a Latin translation in the Benedictine edition.

An Oration against the Heathen; The Incarnation of the Word, A Declaration of Faith; A Tract on Matthew xi. 22; A Circular Letter to Bishops; Apology against the Arians; On the Decrees of the Nicæan Synod; On a Sentence of Dionysius; Epistle to Dracontius; Circular Epistle to the Bishops of Egypt and Libya; Apology to the Emperor Constantius; Apology for his Flight; Epistle to Serapion on the Death of Arius, Epistle to the Monks; Four Orations against the Arians; Four Epistles to Serapion; On the Synods of Ariminum and Seleuceia; An Address to the Bishops of Antioch; An Epistle to Jovian; The Life of St Anthony; Two Epistles to Orsius and one to Ammonius; On the Incarnation; Against the Arians; An Epistle to the African Bishops; An Epistle to Epictetus, An Epistle to Adelphius; An Epistle to Maximus; Two Books against Apollinaris; Epistles to John and Antiochus, to Palladius, to Amunis, to Rufian is, to Lucifer, to the Monks; A Work on the Trinity and Holy Spirit; An Epistle to Marcellinus; An Exposition of the Psalms; Fragments of Commentaries on the Psalms, Job, the Canticles, Matthew, Luke, and the Hebrews, many fragments of Epistles and short Essays on the Disease of Herod, on False Prophets, and some fragments of Sermons.

Of the following, the authenticity is more or less doubtful

Two Tracts on the Incarnation; On the Testimony of Scripture, A Catholic Epistle, A Refutation of the Meletian and Eusebian Heresies, A Book against the Sabellians, On the Unity of Christ, On the Sabbath and Circumcision, A Homily on the Seed; On Matthew xxi. 2; On the Cross and Passion, A Treatise on Virginity; A Synopsis of Sacred Scripture.

A number of spurious treatises pass under the name of Athanasius, and form an appendix to the Benedictine edition of his works

Athanasius the Great must not be confounded with Athanasius Junior, or Celetes, surnamed Hermiosus, who was also bishop of Alexandria from about A.D 490 to 497, and was esteemed a good biblical scholar, an active bishop, and a devout man He is supposed to be the author of several works ascribed to Athanasius the Great, particularly the Sacræ Scripturæ Synopsis, Quæstiones et Responsiones ad Antiochum, two tracts De Incarnatione Verbi Dei, Syntagma Doctrinæ ad Clericos et Laicos, de Virginitate sive Ascesi

ATHANASIUS, the rhetorician, bishop of Constantinople, wrote a work entitled *Aristotelis propriam de animæ immortalitate mentem explicans* Gr. Lat 2 libris Paris 1641, 4to And also *Antepatellarus seu de primatu S. Petri, Epistola de Unione Ecclesiarum ad Alexandriæ et Hierosolymorum Patriarchas; item Antiampulla, in compendium redactus* Gr. et Lat Paris, 1655, 4to.

ATHEISM [See MATERIALISM]

ATHELING, or **ÆTHELING**. The indications, in the Saxon period of our history, of anything like the hereditary nobility of the times after the conquest are exceedingly few certainly, the system which gives to particular families particular names of distinction and particular social privileges, which are to descend in the families as long as the families endure, we owe entirely to the Normans. The Saxons had among them earls, but that word was used to designate, not as in these times only a rank of nobility, to which certain privileges are attached, but a substantial office bringing with it important duties, the superintendent indeed, under the king, of one of the counties or shires, the sheriff, gerefa, in Latin vice-comes, being his inferior, his delegate or deputy. These earls, who were nominated by the sovereign, held their offices as it seems for life, and were usually selected from the most opulent families Even the sovereignty among the successors of Egbert seems not to have descended uniformly according to our modern principles of hereditary succession.

Yet there were persons in the Saxon times who are spoken of as Æþel-boren, Athel, or Ethel-boren, persons nobly born The term is used in Luke (xix. 12), in the Anglo-Saxon version of the New Testament, where, in the modern translation, we have the words 'a certain nobleman.' Æthel, Athel, or Ethel, is frequently used by Saxon writers in senses correspondent to those annexed to the Latin word *nobilis*, the English word *noble*, and the German *adel* or *edel*. By the addition of *ing* we get Atheling, a son of the noble, or a noble youth, a term which is found united with the names of many members of the Royal House in the Anglo-Saxon monarchy, as Edmund Atheling, Edgar Atheling, and it is believed not in any other Saxon family; it thus constituted what may properly be regarded as an hereditary title, or at least, a title which was common to the *princes*, as we should now say, 'of that house.'

When the word Atheling has been found following a name by which a Saxon was designated, it has been supposed by some persons to be of the nature of a surname; and especially in the instance in which it is found united with Edgar, in him who was the last male in that illustrious family. Polydore Virgil, an Italian, who in the middle of the sixteenth century wrote a history of England in elegant Latin, falls into this error; for which he is rebuked by Selden, the author of the admirable work on the various titles of honour which have been in use in the countries of modern Europe. He shows that Edgar Atheling is the same as Edgar the Atheling, or the noble, and that while some of our earlier chroniclers, as Henry of Huntingdon and Matthew Paris, so designate him, others, as Hoveden and Florence, call him Edgarus Clyto. *Clyto* is the Greek term answering to *eminent, illustrious*. It is rather a remarkable fact concerning the Saxon kings of England and their families, that they affected titles and denominations of Greek origin, as Clyto, Basileus (king), and Adelphe (sister); the last appears on the seal of the royal abbess of Wilton.

There is no sufficient information to show when the word Atheling first began to be used in the Saxon dynasty, but it has been supposed that it was used from the earliest times by those who could boast of being of the blood of Woden, who was regarded as the common ancestor of all the races of Saxon sovereigns. Some have represented the term as confined to the eldest son of a reigning monarch, or at least to one who was the heir-presumptive to the throne. The Atheling of the Saxons they have regarded as equivalent to the term Dauphin in the line of the French monarchy, and Prince of Wales in our own. But this restriction of it seems not to be sanctioned by the passages in Saxon and other early writers in whom it occurs.

Nothing is known of any peculiar privileges belonging to the Athelings. But those who in modern times have had occasion to speak of the term and the circumstances under which it was used, such as Lingard and Turner in their histories of the Saxon period, speak of lands being usually given to the Atheling while still in his minority. And hence it is that this word Atheling has descended to our times in the local nomenclature of England.

As we have numerous Kingstons, so have we Adlingtons; and both King and Atheling, with slight variations, have descended in union with other local terminations. We have Kingsbury, Kingsley, and Kingswood; Conington, Coniston, Conysthorpe, and Cony-Weston; as we have also Bere-Regis, as it is now called, but by the Saxons, Conybere. So also have we Adling-flete, Edlingham; and no doubt such names of places as Addingham, Addington, and Edlington, are of the same etymology In one instance we have an Edlington at a very short distance from the walls of a castle called Coningsborough—the one the seat of a Saxon Rex or Regulus—the latter, no doubt, one of the portions of land which were settled on one of the Athelings.

ATHELNEY, ISLE OF. This appellation, though it has ceased to be applicable, is retained by a rising ground in the parish of East Ling, and hundred of Andersfield, in the county of Somerset; bounded on the S.E. by the river Tone (a tributary of the Parret), over which is a wooden bridge still called Athelney bridge. The whole 'island' contains about 100 acres, and in 1791 formed a compact farm of about equal portions of arable and pasture land. There is a farm-house at its southern extremity.

This spot was antiently surrounded by almost impassable marshes, and has acquired celebrity as the place in which the great Alfred found temporary shelter while the Danes overran Wessex. It is thus described by William of Malmesbury: 'Athelney is not an island of the sea, but is so inaccessible on account of bogs and the inundations of the lakes, that it cannot be got to but in a boat. It has a very large wood of alders, which harbours stags, wild goats, and many beasts of that kind. The firm land, which is only [illegible] in breadth, contains a little monastery and dwellings for monks. Its founder was King Alfred, who, being [illegible] the district by the Danes, had kept himself for [illegible] in that secure lurking-place.'

[illegible]'s account is nearly similar, except that [illegible] the height of summer it could be reached, [illegible] by a man on foot. Here, he adds, the [illegible] from whence [illegible] upon the [illegible] in posterity, had they not, with other particulars of his life, together perished.'

The abbey appears to have been founded in 878 or 888. The buildings, judging from various parts of them that have been discovered at different times, are supposed to have been very magnificent. The conventual church was partly rebuilt in 1321; but not a vestige of the whole now remains, and the field on which it stood has been converted into tillage. (Collinson's *Hist. of Somersetshire;* Dugdale's *Monasticon.*)

ATHELSTAN, an illustrious prince in the line of the Saxon sovereigns of England, scarcely less illustrious than Alfred, his renowned grandfather. He was the first who called himself king of the English; his father and grandfather having been content to call themselves kings of the Anglo-Saxons, while Egbert, and the sovereigns between him and Alfred, were only styled kings of Wessex.

Athelstan was born six years before the death of Alfred. The first notice that we find of him is, that he received while still a child some honorary distinction at the hands of his grandfather. It is a question whether he was, strictly speaking, a legitimate son of his father. It is admitted on all hands that his mother was a person of lowly birth, the daughter of a Saxon husbandman. His father succeeded to the throne of Alfred, and is known as the Elder Edward, to distinguish him from the two later Edwards of that royal house, the Martyr and the Confessor.

The eldest son of Edward, and the only son who had arrived at years of maturity, except Athelstan, died a few days after his father. This opened the way to Athelstan's succession, who, it is said, was nominated in his father's will, and who had certainly with him the voice of a large party in the kingdom. The Wittenagemote sanctioned his assumption of the sceptre, and he was crowned at Kingston-upon-Thames. His reign began in A.D. 925.

But though he had every thing in his favour except a clear hereditary right of succession,—and hereditary right was not held in such esteem either in the Saxon or other nations of that period as it has been since experience has proved the great advantage of having fixed rules of succession,—yet he had to defend his right to the throne against a party who espoused the cause of some of the younger children of king Edward. And here we must notice a suspicion of a crime which attaches to the memory of this favourite monarch. Edwin, one of his brothers, is said to have been driven out to sea by his orders in tempestuous weather, in an open and shattered boat: only one companion was given him. In a transport of indignation he is said to have leaped into the sea, and to have been lost. It is some relief to read in one historian of that period that the contemporary evidence scarcely goes to the proof of any thing beyond the fact, that Edwin was lost in the English seas. Athelstan had other persons to contend against. Neither Alfred nor Edward had possessed an entire sovereignty of England: Cornwall and parts of Devonshire were under another chief. Wales retained its original independence; and in the north, there was the kingdom of Northumbria, which had not yet yielded to the power of the princes of Wessex. At this time Sigtric, grandson of Regnar Lodbrok, was king of Northumbria. As far as from the facts which the chronicles of those times have handed down to us we can speculate on the political intentions of Athelstan, it would seem that he contemplated nothing less than to make himself master of the whole island of Britain, not excepting the parts which formed the kingdom of Scotland. If, however, these were his intentions, he did not succeed. But he gained territory from the chiefs who held Cornwall, and tribute, if not territory, from Hoel the then sovereign of Wales. The chroniclers represent him as permitting Hoel still to reign, and saying that it was more glorious to make kings than to be a king.

In respect of the northern powers, after some successful attacks upon Sigtric, he consented to terms of peace, and even gave one of his sisters in marriage to that king. Sigtric, however, soon died, when Athelstan, without a shadow of right, seized upon his dominions; Anlaff, the son of Sigtric, and another son, being compelled to abandon the island. Thus was Northumbria brought under the sovereignty of the kings of Wessex.

Neither Scotland, nor any other of the neighbouring states which still maintained a political independence, saw with satisfaction the growing power of Athelstan; and Anlaff, the exiled son of Sigtric, made every exertion to

regain the sceptre which had been forcibly wrested from him. A large portion of the inhabitants of Northumbria were of the race called Danes, in contradistinction to the Saxons. They yielded on that account the more reluctantly to their new master. There was a national sympathy and community of interest with the Danes and Northmen generally: of which Anlaff took advantage, and prevailed with them to send a very powerful force to assist him in re-establishing the Northumbrian sovereignty. A great effort was at that time made against Athelstan by all the neighbouring states—the Welsh, the Scots, and the Irish, all combining to assist Anlaff.

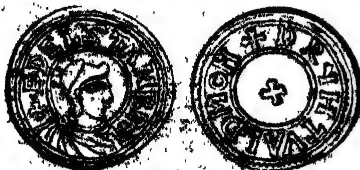
Athelstan had, however, by that time consolidated his power, by his prudent counsels and good government; and the issue of the war contributed to establish still more securely his power at home, and to extend his reputation abroad. He marched against the confederated chiefs; the armies engaged at a place called by the early chroniclers who mention the fact Brunenburgh; but where Brunenburgh is no one now knows, except that it was in some part of the ancient kingdom of Northumbria. There Athelstan gained a complete victory.

The victory at Brunenburgh is celebrated alike in Saxon history and Saxon song. More was said and thought of it than of any battle in which the Saxons had been engaged. It was called the Great Battle. Among the Saxon poems which have descended to our times, there is one of which this battle is the subject. No unfavourable idea will be formed of Saxon poetry from the following passages in it:

Here Athelstan King,
of earth the lord,
the giver of the bracelets of the
nobles,
and his brother also,
Edmund the Ætheling,
the Elder! a lasting glory
won by slaughter in battle
with the edges of swords
at Brunenburgh.
The wall of shields they cleaved,
they hewed the nobles' banners,
the survivors of the family,
the children of Edward.
As to them it was natural
from their ancestry,
that they in the field often
against every enemy
their land should defend,
their treasures and homes.
Pursuing, they destroyed
the Scottish people
and the ship fleet.
The dead fell!
the field resounded!
the warriors sweat!
After that the Sun
rose in the morning hour,
the greatest star!
glad above the earth,
God's candle bright!
the eternal Lord's,
till the noble creature
hastened to her setting.
There lay soldiers many
with darts struck down,
Northern men,
over their shields shot.
So were the Scotch
Weary of ruddy battle
* * * *
Nor had there been a greater
slaughter
in this island
ever yet
of people destroyed,
before this
by the edges of swords,
(This is what the books tell me of
the old wise men)
since from the East hither
the Angles and the Saxons
came up
over the broad waves
and sought the Britons.
The illustrious smiths of war!
The Welsh they overcame;
The earls excelling in honour,
and obtained the country.

One effect of this victory was to extend the name and reputation of Athelstan beyond his own shores. He had from that time great influence in the affairs of neighbouring kingdoms. His sisters were given in marriage to the king of France, to the emperor of Germany, and a king of the North. His influence in the general politics of Europe, and the high respect in which he was held, have been very fully shown by Mr. Sharon Turner, in his *History of the Anglo-Saxons.* Mr. Turner has collected his facts, not from our own historians and chroniclers, who have scarcely touched upon these parts of the history of Athelstan, but from the historians of other nations. On the whole, it is flattering to the national pride of Englishmen to think, that while in the eighth century Alcuin, an Englishman, was the friend of Charlemagne, so in the tenth century Athelstan may be said to have held the balance of power for some years among the kings of the Continent.

His reign was of short duration; he died A.D. 940, being only in his 47th year. 'His life,' says William of Malmesbury, 'was in time little, in action great;' and there cannot be a doubt, that under him England was advancing in consequence as one of the powers of Europe, and in civilization and improvement in respect of her internal affairs. What she suffered afterwards from incursions of the piratical nations of the North, she might possibly have escaped had the vigorous rule of Athelstan longer continued. He had no family, and was succeeded by Edmund, his brother.



[Silver. Brit. Mus.]
On this coin the name is written Edelstan.

Athelstan did not labour more to secure his throne and to extend his power and political influence, than to give security and legal government to his people. Alfred had left a code of laws to which Athelstan made additions, the principle on which he proceeded being to bring all classes, the ecclesiastics as well as others, within the scope of certain great principles. There are traces in his laws of a public provision for some of the poorest and most destitute of his subjects. He promoted the erection of monasteries, which was in fact at once to provide seats and centres of religious ministration, and places for retirement and security to persons devoted to study. He was himself sensible of the value of books at a time when 'book-ers,' as scholars were in those times called, were few. A catalogue of a small collection of books which belonged to him is preserved, and has been printed by Mr. Turner. He encouraged the translation of the Holy Scriptures into the vernacular tongue. The monks of the abbey of Bath, even to the time of the Reformation, were accustomed to show to visiters certain manuscripts which they affirmed to be the gifts of King Athelstan. Two very antient manuscripts, which there is the strongest reason to believe once belonged to him, are preserved among the Cottonian Manuscripts in the British Museum: one of them is supposed to be the very copy of the Gospels on which the Saxon kings took the oath at their coronation. Athelstan was buried in the abbey of Malmesbury.

ATHENA'IS. [See EUDOCIA.]

ATHENÆ'US of Attalia, (or, according to Cœlius Aurelianus, of Tarsus in Cilicia,) a physician who flourished in Rome about the middle of the first century, and established the *Pneumatic* school in medicine. Of the circumstances of his life no particulars are known, and of his works, which, according to Galen, were numerous and highly valued, nothing remains except a few fragments preserved by Oribasius and Aetius, and the allusions which are made to his opinions in the writings of Galen. The theory, which originated with Athenæus, and was transmitted by him to his pupils, Agathinus and Herodotus, and adopted by several other distinguished physicians [see ARETÆUS], derived its name from the *pneuma* or spirit, a notion of which these physicians made frequent use in their explanations of life and disease. This *pneuma* formed an important principle in the physical science of the Stoic philosophers, from whom the pneumatic physicians seemed to have derived it, adopting at the same time, not only the general philosophical tendency, but the difficult style and dialectic abstruseness of the Stoic sect. The very scanty remains of the pneumatic doctrine do not enable us to judge whether its *spirit* really was, as some have supposed, analogous to the *vital principle* of some modern physiologists; nor can we appreciate in what manner the Pneumatics conceived the efficacy of this *spirit* as connected with those principles which they admitted in common with other antient schools, viz., the elementary qualities, heat and cold, which they called active; and dryness and moisture, which they termed passive principles. (See Leclerc and Sprengel's *Histories of Medicine.*)

ATHENÆ'US, a Greek, and a native of Naucratis in Lower Egypt, was probably born in the reign of Marcus Aurelius, and was the contemporary of his son Commodus. (See Athenæus, p. 537, Casaub.) He lived at Alexandria, and afterwards at Rome. We know nothing more of his life except that he must have written part at least of his work after A.D. 228, for he mentions (xv. p. 686) the death of Ulpian, which, according to Dion Cassius, took place in A.D. 228.

He wrote a history of the Syrian kings, now lost, and a curious work entitled *Deipnosophistæ* (Δειπνοσοφισταί), or the *Banquet of the Learned*, or, perhaps, *Contrivers of Feasts*, in fifteen books, which is still extant, and probably nearly complete, with the exception of the first two books, and the beginning of the third. The parts which are not complete appear to be a kind of copious extract or epitome of the original. Athenæus represents himself as describing to his friend Timocrates an entertainment given by a learned and wealthy Roman, Larensius [illegible], to the most accomplished men of the day. [illegible]

company we find Ulpian the lawyer, Galen the physician, Rufous of Nicæa, and many others. (See the Greek Preface to the work.) Athenæus intended to give his work a dramatic character, something like the dialogues of Plato, but in this he altogether failed; and, as far as regards dramatic effect, the *Deipnosophists* has very little merit. The long quotations continually introduced necessarily destroy all the form of dialogue, which is very imperfectly kept up by the occasional introduction of one of the guests' names, and his propounding some point of inquiry (see vi. 228, &c.), which invariably leads to a long dissertation and numerous quotations from the comic writers and other poets, which make us entirely forget the speaker. The subjects discussed are chiefly those which concern the pleasures of the table and of the senses, but the whole is intermingled with so many interesting facts and copious extracts from writers now lost, that the work altogether forms one of the most valuable books that has been preserved for the illustration of antient manners. It seems as if Athenæus, who must have been a prodigious reader, intended to make his work a receptacle for all the curious facts that he had found in the course of his studies, and for such extracts from antient writers as either bore upon some particular point or had given him pleasure. From the variety of matter which the work of Athenæus contains, it bears some resemblance to the *Natural History* of Pliny (though it differs essentially in plan), and, like that multifarious compilation, it would require the labour of many men of various kinds of acquirements to illustrate it completely. It is however in a great degree a treatise on the antient gastronomy, and must supply the place of the complete work of Archestratus on that noble science. The work of Archestratus, which was entitled *Gastronomia*, was written in hexameter verse, and is only known from the extracts in Athenæus. (29, 111, &c.)

The first book of the *Deipnosophists* begins with a panegyric on the host Laurentius, records the names, with anecdotes, of some of the most distinguished worthies in the gastronomic art, such as Apicius [see APICIUS], and treats of the praise of wine, &c. The subject of wine is continued in the second book, which contains at the end a great deal of curious matter about fruits and vegetables which are suitable for food. The third book, which, with the exception of the first part, seems to be in its genuine form, contains a delicious dissertation on figs, apples, shell-fish, and other matters relating to eatables, the whole interspersed, as usual, with numerous quotations from the poets. We must refer the reader to the original for the varied contents of the following books.

We may form some estimate of the value of the work of Athenæus from this fact, that 'he had read and made extracts from eight hundred plays belonging to the middle comedy; he quotes above fifteen hundred lost works, and the names of about seven hundred writers, many of which, but for him, would be entirely unknown.' (Schoell, von Dr. M. Pinder, vol. ii. p. 509.) This work is often of great value as incidentally giving information on many dubious points of history, and also the means of illustrating the history of antient art. [See APELLES, ARSINOE.] The general accuracy of the quotations and references of Athenæus, as far as we can check him by existing works, is an argument in favour of the value of those extracts from works that are now lost.

The first edition of Athenæus is that of Aldus, Venice, 1514, folio, which was got up with the assistance of M. Musurus. That of Casaubon was first published at Geneva, 1597, folio. The commentary was not published till 1600, at Lyons. This edition was afterwards reprinted.

The edition of J. Schweighäuser, which appeared at Strasburg, 1801—1807, 14 vols. 8vo., was founded on a collation of two new MSS., one of which appears to be the original of all the MSS. of Athenæus now known. It is objected to this edition, that Schweighäuser made very little use of the corrections on Athenæus by various scholars, which are scattered through different works, and paid no attention to correcting the metrical errors which abound in the text of this author. There are corrections of numerous passages in Athenæus in Porson's *Adversaria*, Meineke's [illegible], Elmsley's *Adversaria*, &c.

The [illegible] edition of Athenæus is by W. Dindorf, [illegible]. There is a French translation of [illegible] [illegible] and [illegible]

ATHENÆUS, a Greek writer, probably contemporary with Archimedes. A work by him on engines of war (Περὶ μηχανημάτων) is extant, and printed in the collection of Thevenot. This work is addressed to M. Marcellus, supposed to be the conqueror of Syracuse.

ATHENA'GORAS, of Athens, was a Christian philosopher, who wrote an apology for the Christians to the Emperor Marcus Aurelius and his son Commodus. Hence we infer that Athenagoras lived in the latter half of the second century, and that he composed his apology about A.D. 177. (See Mosheim *De Verâ Ætate Apologetici quem Athenag. pro Christianis scripsit in Dissert. ad Hist. Eccl. pertin.* Ed. 3. vol. 1. p. 269, et seq.) The apology of Athenagoras bears the title of πρεσβεία, *petition*, which has been improperly translated *Legatio*, and *embassy*. This apology is a well-digested and eloquently-written treatise. Athenagoras demands toleration for the Christians, and defends their doctrine and their lives against the then usual accusations of atheism, incest, eating of the flesh of slaughtered children, &c. He proves the unity of God, according to the materialism of his age, by assuming the diffusion of his essence through space; but he expressly distinguishes God from matter. His explanation of the Trinity is based upon the doctrine of emanation. He says that the Holy Ghost proceeds from God like a ray from the sun, and returns to him. (Edit. Maran. p. 287.) He declares second marriage to be adultery. The treatise of Athenagoras on the Resurrection of the Dead is in some degree connected with the conclusion of his *Petition*. Athenagoras, in his book on the Resurrection, shows the necessity of having the mind freed from prejudice in order to arrive at truth; refutes the objections made against the resurrection, and confirms it by argument. 'Those who deny the resurrection should prove either that God *cannot* bring it to pass, or that he *will* not. If he cannot do it, it must be either because he lacks skill to plan, or power to effect it; but his formation of the human body refutes these suppositions. If he have power but will not do it, then it must be because it would be unjust in itself, or unworthy of the divine nature; but neither of these can ever be proved.' He has some curious speculations on the identity of the human body, which, on three grounds, he argues will be raised again to life:—'1. from the design of man's creation; 2. from the nature of man as an accountable being; 3. and from God's justice as a rewarder of good and evil.' (See Clarke's *Succession of Sacred Literature*, London, 1830, p. 108—111.) Semler made a fruitless attempt to impugn the authenticity of the *Petition*; but the objected quotations from the Prophets, and from heathen mythology, as well as the title of philosopher, given to the emperor, are quite appropriate in a Christian apology of the second century. Philippus Sidetes, an ecclesiastical writer, who lived about A. D. 420 at Constantinople, relates that Athenagoras was converted by reading the Holy Scriptures for the purpose of confuting Christianity; that he continued to wear the philosophic mantle; and that he was the first teacher of the catechetic school at Alexandria. Sidetes also asserts that Clemens of Alexandria was the disciple of Athenagoras. Mosheim calls him an eclectic philosopher, whilst Lange and others say that Athenagoras was the first who applied Platonism to Christianity. It however seems certain that Athenagoras was among the first who philosophised about Christianity.

The older editions of his writings are specified in Fabricii *Bibliotheca Græca*, vol. v. p. 86, et seq.; and in Oudin. *Comment. de Script. Eccl.* vol. i. p. 203, et seq. The best are *Ath. Legatio pro Christ. et Resurr. Mort.* Gr. et Lat., edited by Henry Stephens, 1557, 8vo.: by Ed. Dechair. Ox. 1706, 8, with notes of Gesner and others; reprinted also in Gallandi *Bibl.* pp. t. ii.; and in Justin Martyr's Works, by the Benedictins, 1742, fol., with a very good introduction: *Ath. Deprecatio, vulgo Legatio, pr. Christ.* Gr. c. ind. et (valuable) not. by Lindner, 1774, 8: *Legat. et de Resurrectione*, ed. *Oberthür*, Gr. et Lat. 8vo. Wirreb. 1777, with Tatian, Theophilus, and Hermias: *The most excellent Discourse of the Christian philosopher Athenagoras touching the Resurrection of the Dead*; Englished from the Greek (he should have said Latin) of Peter Nannius by Richard Porder, 8vo. Lond. 1573: *The Apologetics of Athenagoras*,—1. *For the Christian religion*; 2. *For the truth of the Resurrection*, &c., by David Humphreys, 8vo. Lond. 1714. Several extracts of both pieces are translated in Dr. Lardner's *Credibility of the Gospel History*. In [illegible] a romance, pretended to be translated from an original

work of Athenagoras, was printed at Paris by Daniel Guillemot: it was entitled '*Du Vrai et Parfait Amour, écrit en Grec, contenant les amours honnêtes de Théogene et Charide*,' &c.

ATHE'NE, or ATHENA, the Goddess of Wisdom, of Arts, and of Sciences, among the Greeks; known to the Romans as Minerva. The Greeks seem to have included under this name several divinities of a perfectly distinct origin—a goddess of Libya, the daughter of Neptune and of the nymph Tritonis (Herodot. iv. 180), or of Terra, brought forth on the banks of the river Triton in Libya (Diodor. iii. 69); but the one best known to us is the divinity worshipped by the Athenians, and, as it would appear, brought from Egypt, at least if we may judge from some of the symbols with which her statue was adorned: she had a sphinx on her helmet and at her feet. Plato (*Timæus Opera*, vol. iii. p. 21) tells us that she was called Neith by the Egyptians; and Eratosthenes, in his *Catalogue of the Kings of Thebes* (Euseb. *Chron.* p. 21), says, that 'Nitocris' may be translated into Greek by 'Athene Nikephoros.'

According to Homer she was the daughter of Zeus; but there is no allusion in either the *Iliad* or *Odyssey* to the fable of her having sprung forth completely armed from the brain of that god: it appears, however, in the *Hymn to Athene*, usually ascribed to Homer. A scholiast on Apollonius (*Argon.* iv. 1310) remarks, that this fable first made its appearance in Stesichorus (who died B.C. 553), and the *Hymn* therefore must be of a comparatively recent date. In the legend of Hesiod (*Theogon.* 885-889), Jupiter is made to devour his wife Metis, and in process of time Athene is the result of this strange union. She seems to have participated in many of the attributes of her father: she had the power of hurling the thunderbolts of Jupiter, of prolonging the life of man, and of conferring the gift of prophecy. In the battle with the giants, she overwhelmed Enceladus with Sicily; she assisted in the building of the ship Argo, and a wooden figure of Athene graced the prow of the vessel; she assisted Hercules; gave the art of prophecy to Tiresias, and immortality to Tydeus, though she afterwards deprived him of it. She was one of the three goddesses who submitted their beauty to the decision of Paris, and she disputed with Neptune the honour of giving name to the new city of Cecrops. [See ATHENS, p. 14.] The contest was decided in her favour by the production of an olive tree, and the city was hence called Athenæ. (Apollodor. *Biblioth.* iii. 14.) According to Diodorus (i. 12), the Egyptians gave this name to the Goddess of the Air, and she was thought to be the daughter of Zeus, because the air is not naturally subject to corruption; and was sprung from his brain, because it occupies the highest parts of the world. She was called Glaucopis (blue-eyed), because the air is of a bluish colour. The serpent, the owl, and the cock, were sacred to her; and, among plants, the olive. She was worshipped in all parts of Greece, but the most celebrated temple was at Athens [see PARTHENON], in which there was an ivory statue of colossal size by Phidias.

The statues of the goddess, called Palladia, exhibited her in very antient times with upraised shield and poised spear, ready to engage in battle; sometimes, as symbols of her peaceful character, she had in her left hand the spindle and distaff. A stiffly-folded peplum was thrown over her chiton (tunic), and she was armed with an immense ægis, which sometimes served as a shield, and sometimes was so contrived as to cover both the breast and back. The outline of the body exhibits none of the fulness of woman in the hips and breasts, while the form of the bones, arms, and back, resembles that of man. But the age of Phidias changed considerably the antient characteristic marks of the different gods, and from that time Athene was distinguished by her unclouded forehead, her long and well-formed nose, by the somewhat firm compression of the mouth and cheeks, the strongly marked and almost angular chin, the half-closed eyes, and by the hair streaming carelessly over her neck. There are many representations of the goddess in sculpture, on coins, &c. still extant; and numerous examples are pointed out by Müller in his *Archäologie der Kunst*, where the subject will be found fully treated. A fragment, supposed to belong to the statue of Athene, which was in one of the pediments of the Parthenon, is now in the Elgin Collection of the British Museum. (See also Creuzer, *Symbolik*, vol. ii. p. 399.) [For the *Italian* goddess, see MINERVA.]

ATHE'NION, a Sicilian slave, one of the principal actors in the second Servile war which broke out in Sicily, and lasted from the year B.C. 102 to 99. By birth he was a Cilician: he had acquired considerable reputation for skill in divination by the stars; and we may conjecture that his talents were of an uncommon order, not so much from the short-lived prosperity which he enjoyed, as from the unusual tenor of his policy. He filled the station of steward or overseer to two wealthy brothers, and, after the insurrection had commenced in other parts of Sicily, began his career by gaining over the slaves under his own charge, to the number of 200. Other slaves flocked to his standard from neighbouring properties, so that within five days his followers amounted to 1000 men. He then assumed the title and state of a king; and his measures were such as show a reflecting mind, well adapted to command. He did not freely receive into his ranks all persons who presented themselves; but selected for soldiers those who were best suited to bear arms, and made all others labour at their respective callings: so that he avoided the disorder incident to a tumultuary and ill-provided force, and was always abundantly supplied with necessaries. He also carefully guarded against wanton ravage by a judicious use of his prophetic powers: for he assured his followers that he was destined to reign over Sicily, and that it was wise to preserve uninjured the land and its produce, as part of their own future wealth. He soon collected 10,000 followers, with whom he laid siege to Lilybæum. In this attempt he failed; but by good management this check was made to increase his power over his followers, by verifying his powers of divination. Another slave-leader, named Salvius, at the head of a superior force of 30,000 men, now assumed the title of king, and fixed his residence at Triocala. He summoned Athenion to serve under his command, and it was now hoped that discord would render these formidable insurgents an easier conquest. But the prudence of Athenion disappointed these hopes; and he wisely joined Salvius, who had assumed the name of Tryphon. Tryphon soon conceived a jealousy for his new associate, whom he imprisoned; but he was glad to release and restore him to his command, when Licinius Lucullus, with an army of 16,000 or 17,000 men, was sent by the Senate to bring the war to a conclusion. By Athenion's advice a battle was risked near Scirthæa, in which the insurgents were defeated, and Athenion severely wounded. Lucullus then laid siege to Triocala, in which he met with no success. He was superseded by L. Servilius, who did no better; and both those generals were banished for their misconduct or ill-success. On the death of Tryphon, Athenion succeeded him, and, unchecked by Servilius, extended his ravages over great part of Sicily.

These events must have occurred in quick succession to be comprehended (as they are by Mr. Clinton) in the year B.C. 101. In B.C. 102, C. Marius and Manius Aquilius were consuls, and the province of Sicily fell to the latter. He won a decisive victory, in which Athenion himself fell. The insurgents dispersed to their strong holds, whither Aquilius pursued, and reduced them severally to submission. Thus ended the Servile War in Sicily, in the fourth year, B.C. 99. This desperate insurrection, in the course of which six Roman armies suffered defeat (Florus, iii. 19), is not a solitary instance of the danger consequent on a servile population.

Florus varies from the account here given from Diodorus. He says, that Aquilius hemmed in the slaves, and reduced them by famine; and that at last they perished by their own hands rather than surrender. The account of Diodorus is the more likely. (Diod. *Eclogæ*, lib. xxxvi. 1; Florus, iii. 19.)

ATHENION, son of a Peripatetic philosopher of the same name, by an Egyptian slave. He was manumitted; kept a school in Athens, where he was naturalized; assumed the name of Aristion, and ultimately became tyrant of Athens. He espoused the interests of Mithridates, and in concert with Archelaus, the king of Pontus's general, held out the city against Sulla, who finally put him to death. [See SULLA: his history is given by Athenæus, V. c. 48. 53.]

ATHENION, a painter, born at Maronea in Thrace, and pupil of Glaucion of Corinth. Pliny gives him the extraordinary praise, that 'if he had lived to maturity, no one would have been worthy to be compared to him.' (*Hist. Nat.* xxxv. 40. ed. Delph.)

ATHENION, a comic poet. Athenæus gives a long extract from his *Samothracians*, lib. xxiv. c. 80.

ATHENRY, or ATHENREE, a town in Ireland, in the county of Galway, which, before the Union, returned

two members to parliament. It is a very old corporation, and is governed by a portreeve. Its former name was Atereth. It is 117 miles W. by S. of Dublin, and 14 E. of Galway.

There are three fairs in the year. The church is in good repair. The London Hibernian Society and the Kildare Place Society unite with the incumbent in the support of a free school, in which about forty children (boys and girls) are educated. The population of the town in 1831 was 1093: that of the whole parish, 12,580. This last statement includes the population of the chapelry of Monivea; in which are a chapel of ease and several free schools, including a charter school, and two schools connected with the Kildare Place Society. The living is a consolidated rectory and vicarage, in the diocese and province of Tuam.

There was a Dominican friary in Athenry, which was burnt in the year 1432. The remains show it to have been a fine building; the great east window is bold, and of good workmanship. Part of the ruins have been taken down to erect barracks. A Franciscan friary was also founded here in 1464.

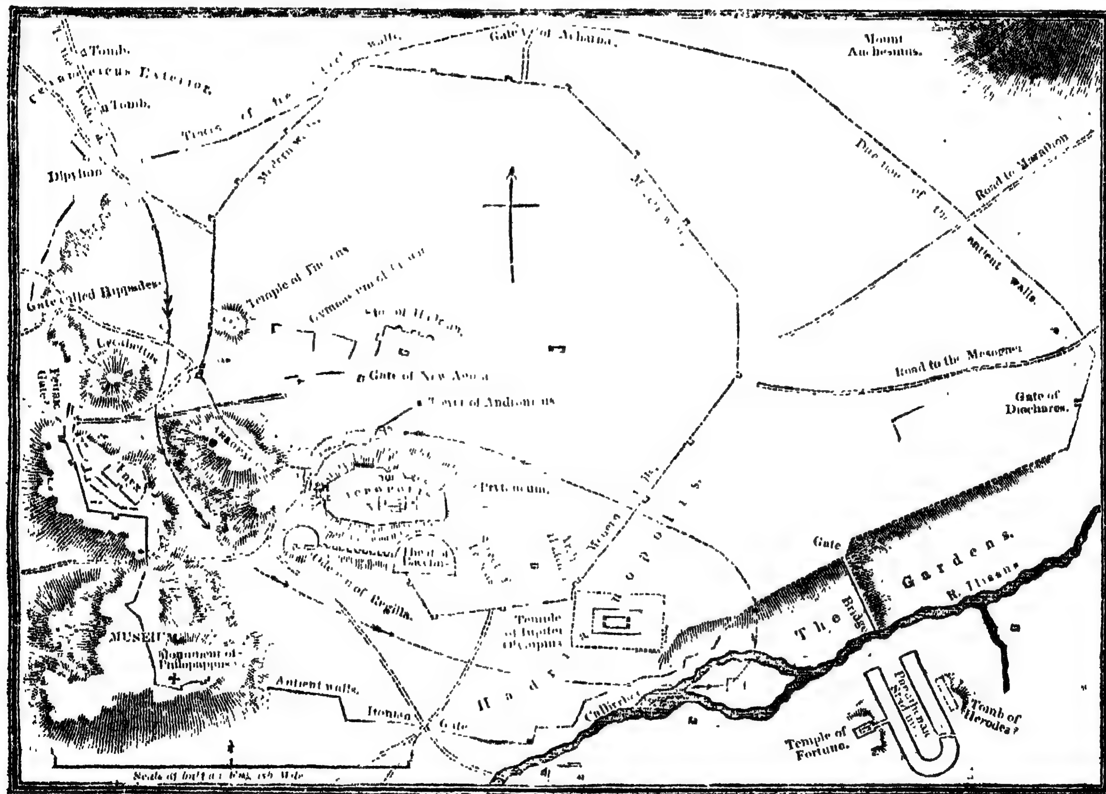
This town gives name to one of the baronies of the county. (*Parliamentary Papers.* Seward's *Topog. Hibernica.*)

ATHENS, or ATHE'NÆ (Ἀθῆναι), the chief city of Attica, one of the antient political divisions of Greece.

We propose in this article to give, first, a brief description of the topography of the city, referring to ATTICA for the geographical description of the province; and next, a brief outline of its political and literary history, referring to the proper articles for the minuter detail.

Athens is situated about five miles from the sea-coast, 37° 58′ N. lat., 23° 43′ E. long., occupying part of the central plain of Attica, and some heights which run down into the plain, but are quite detached from the mountains on the north frontier of the province. Of these eminences, the most conspicuous are Mount Anchesmus (now St. George) with its peaked summit rising higher than the Acropolis, on the north-east of the city and beyond the antient walls: the Acropolis, which was entirely included within the old walls; the Areopagus, opposite to the west end of the Acropolis; and the hill of the Museum, partly included within the antient walls, the highest eminence on the south. On the east side of the city, the little river Ilissus, which rises a few miles north-east of Ambelókipo, runs in a south-west direction past the city, separating the heights of Athens on the west, from the higher and more continuous range of Hymettus on the east: it was joined a little above the site of the Lyceium by the Eridanus from the east. This little river, which in its natural state might have reached the marshy lands near the coast, is now reduced by the heats of summer and the channels for artificial irrigation to an inconsiderable stream; and in antient times its current must have been diminished from the same cause. The Cephisus, which runs due south past the west side of the city, at the distance of about a mile and a half from the walls, is also nearly exhausted by the cuts for irrigation before it reaches the neighbourhood of Peiræus.

The accompanying plan of Athens will show the circuit of the wall at the time when the city had attained its greatest magnitude. Beginning with the Gate of Acharnæ on the



[Plan of Athens, from the authorities of Col. Leake and Mr. Cockerell.]

north, it ran eastward near the base of Anchesmus, and past the Diomeian Gate to the Gate of Diochares, which led to the Lyceium: it then continued parallel to the Ilissus on the west side of that stream to the Fountain Callirrhoe, or Enneacrunus; and thence to the hill of the Museum, which it crossed, comprehending the still existing monument of Philopappus within its circuit. Its course from the Museum was north, taking in the chief part of the Pnyx and Mount Lycabettus, to the Dipylum which led to the outer Ceramicus, or great burying-ground, and to the Academia, or school of Plato: in the depression between the Pnyx and Lycabettus was the Peiraic Gate. A line from Dipylum to the Gate of Acharnæ completes the circuit. The direction of the wall from the Ilissus along the south and west sides of the city to the Dipylum is quite clear; the rest of the wall, being built of brick chiefly, or entirely, has not left any traces. The city was connected with its ports, Peiræus, Munychia, and Phalerum, by Long Walls (μακρὰ τείχη), which abutted on the city, respectively at the hill of the Museium, and the Gate of Peiræus. The direction of the Long Walls from the Peiræus is E. by N. by compass, as appears from examination of their existing foundations. The southern wall, which ran from the city to the Phalerum, was called the Phaleric wall; the northern, which ran from the Peiraic Gate to the Peiræus, and was a double wall, was sometimes called the Long Walls and sometimes the Peiraic Wall.* (See the plan annexed to the

* Much has been written on the passage of Thucyd. ii. 13; and we are aware of the difference of opinion as to these Long Walls. We have given in the text what we believe to be the true interpretation *with reference to the time when Thucydides wrote.*

map of Attica) That part of the city walls included between the two points where the Phaleric and Peiraic walls respectively abut on them is not included by Thucydides (ii 13) in his estimate of the extent of the city walls which required defence, and we must, in like manner, deduct from the circuit of the wall inclosing the Peiræus and the Munychia, the space on the land side between the western extremities of the Phaleric and the Peiraic walls The circumference of the city, then, according to Thucydides, in B C 431, was—

	Stadia
The City, deducting the part between the Peiraic and Phaleric Walls . .	43
The Phaleric Wall	35
The Peiraic Wall	40
The Maritime City, deducting the space between the Phaleric and Peiraic Wall . .	56½
	174½

This result will give a total circuit of about nineteen or twenty miles (See Leake's *Topography of Athens* p 368)

The chief Gates of Athens as far as their position can be with any probability determined, are indicated in the plan The cemeteries of the city surrounded it on every side but were most conspicuous on the north and north west, where they commenced immediately on the outside of the walls The road from Dipylum to the Academy was lined with the tombs of illustrious men, such as Pericles, Thrasybulus, Chabrias and Phormion Here too were the monuments erected to the memory of those who fell in their country's service a slab of stone with the name and township [illegible] of each individual was the honour paid by the state to its citizens who died in battle (Pausanias, i 29) The Academy itself was surrounded with a wall planted with trees and ornamented with fountains of water Near it was the tomb of Plato

The tombs on the east side of the city were separated from it by the Gardens [illegible] the Lyceum and the Cynosarges, and do not appear to have been so extensive

The wall which surrounded the city was strengthened at intervals with towers there were also [illegible] towers on the long walls which connected the city with the ports These walls (the Peiraic and Phaleric) were about four miles in length and at a distance of 550 feet from one another when the city was in its highest state of prosperity, the open space between them contained a considerable number of houses which formed a kind of intermediate town between the Asty, or Upper City and the Peiræus

The three ports of Athens, going from west to east, were the Peiræus, now Port Dhrako which contained three natural bays the Munychia, now Stratiotiki separated from the Peiræus by the [illegible] and projecting and hilly peninsula of Munychia and Phalerum now Port Phanari These three ports, with the buildings attached to them once formed a separate city larger than Athens itself A sea wall sixty Greek feet high, and constructed of [illegible] extended from the bay of Phalerum all round the rocky peninsula of Munychia, terminating about Cape Alcimus the north west and west side of the Peiræus was also inclosed by a wall running down to the sea a wall ran from the Phaleric Port across the high ground to the head of the middle bay of the Peiræus and a third wall ran across the narrow isthmus of the Munychia The importance and strength of the fortifications of the maritime city and especially of the Munychia, appear from the siege of this place by Demetrius Poliorcetes, and by Sulla the possession of the ports enabled any person to command the city

The Peiræus was the great dock-yard of the Athenians and the chief harbour for the vessels engaged in the corn and other foreign trade It contained large warehouses public arsenals, the armoury of Philon, several temples theatre, of which some traces remain a long portico or arcade (μακρα στοα) analogous to the bazaars of Eastern cities, which probably contained the Deigma (a place for the exhibition of samples of goods), and Phreattys (a court of summary justice), and other buildings Of all the edifices of the Peiræus, nothing now remains but some traces of foundations and broken pieces of sculptured marble The port, though its entrance is very narrow, is still a safe one 'the ground inside is very good, and rather to the southward of the centre a ship may drop her anchor in about seven fathoms stiff mud, and moor with open hawse towards any point of the compass, for she will ride so secure that neither wind nor sea can hurt her' (Capt W. H. Smyth) The peninsula of the Munychia contains the foundation of a temple the remains of a small theatre, and clear indications that it was extensively built upon Nothing remains of the buildings which once adorned the Phalerum. The line, however, of the extensive system of walls which defended the maritime demi, or towns, can still be traced in most parts, and in the Munychia, on the side towards the sea, courses of masonry both of walls and towers, still exist, formed in some parts of large squared stones clamped with iron. (See Thucyd i 93)

We shall endeavour briefly to describe those localities in antient Athens which seem at present to be pretty well identified It appears probable that even in its best days the first appearance of Athens was not very pleasing and that its attractions were mainly due to the public edifices A Greek traveller of the latter part of the fourth century B C (Dicaearchus Hud *Min Geog* vol i) describes the city as dusty, and badly supplied with water and the streets ill laid out, a fault which he attributes to the great antiquity of the place Most of the houses were mean and only a few good A stranger on the first view he adds 'might doubt if this is Athens but after a short time he would see that it was' [illegible]

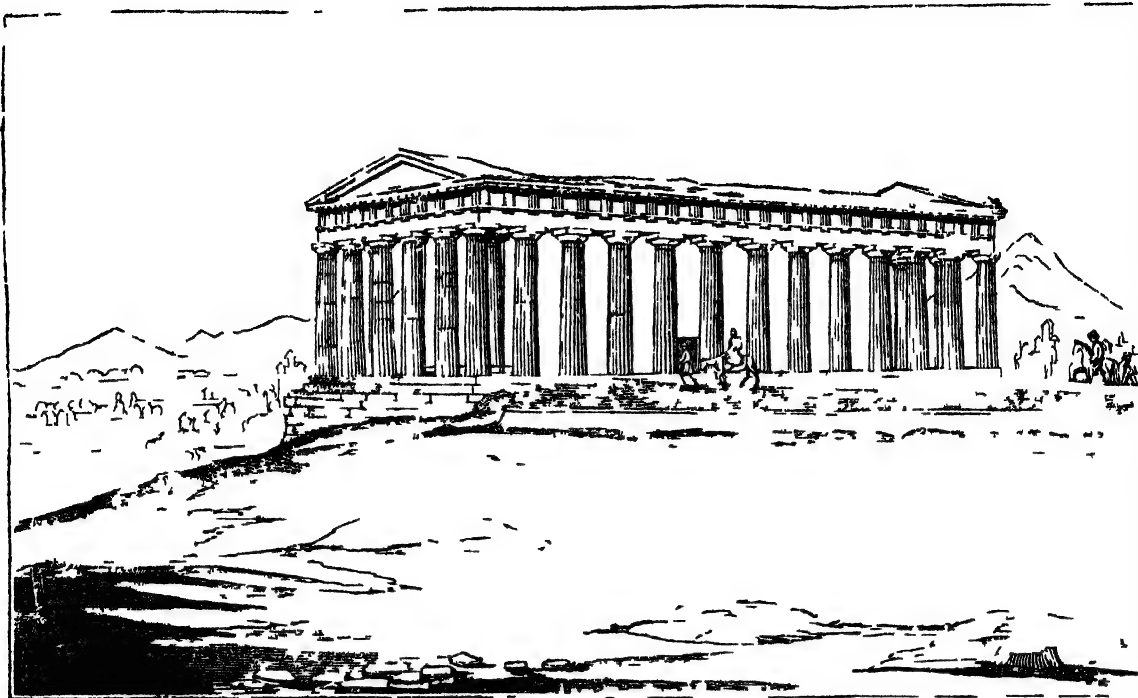
The most striking object is the Acropolis or Citadel a rock which rises abruptly from the plain and is crowned with the Parthenon Opposite to the west end of the Acropolis, and separated from it by a depression, is the Areopagus, or Hill of Mars on the eastern and higher extremity of which was the court of the Areopagus [See AREOPAGUS]

Adjacent to the Areopagus on the west was the Pnyx, where the public meetings were held in the most [illegible] period of the state and which [illegible] still marks the place from which the assembly was addressed (On this [illegible] Jour [illegible] p 1 [illegible] and art. ATTICA [illegible] and Gaub[illegible])

North of the Areopagus is the Temple of Theseus built of Pentelic marble one of the best preserved buildings of antient Athens At first sight it appears so entire as to make us doubt if we are really contemplating a building that was erected about B C 470 465 It is a Doric temple of moderate dimensions a peripteral hexastyle with thirteen columns on each flank The eastern pediment was adorned with sculptures as well as the ten metopes of this front and the four adjacent to them on each flank casts of three of these metopes which appear to refer to the exploits of Theseus and Hercules and also of the frieze are in the Elgin Room of the British Museum [See THESEIUM, and Stuart's *Athens* vol iii]

Nearly due east of the Temple of Theseus are the remains of what is probably the Stoa or Portico of Hadrian, one of the monuments with which this munificent emperor embellished the city of Athens It is not exact to state, as has been done that the architectural character of the west colonnade of this building corresponds to that of the Arch of Hadrian still it seems most likely that these remains are part of the great work of that emperor, described by Pausanias (i 18) who informs us that the Stoa of Hadrian was adorned with a hundred and twenty columns of Phrygian marble and contained apartments whose roofs were gilded and made of alabaster it contained also a library and the apartments were decorated with statues and paintings The Gymnasium of Hadrian was probably near the Stoa and the Gymnasium of Ptolemy between the Stoa and the Temple of Theseus South of the Stoa is the Tower of the Winds called also the Tower of Andronicus Cyrrhestes [See ANDRONICUS and Stuart vol i p 12] The Gate of the New Agora in the quarter called Eretria, between the Great Stoa and the Tower, still exists it is a portico of four fluted Doric columns of Pentelic marble, supporting an entablature and pediment (See the view and plans in Stuart, vol i)

The south east quarter of the city, which is entered by the Arch of Hadrian, was one of the oldest parts of it, next to the Acropolis This building, of Pentelic marble, consists of a circular arch with Corinthian columns, the entablature of which supports another ordinance of Corinthian columns, surmounted by an entablature, with a pediment in the centre (See Stuart, iii 90) An inscription upon the frieze on the south-east side of the arch still testifies that the emperor gave his name to the part of the city between this edifice and the Ilissus. Here stood the magnificent temple of Jupiter Olympius, which being re-commenced about B.C. 175—165, on the site of an



[Temple of Theseus from Stuart's *Athens*]

older temple, and worked upon at intervals, was at length finished by the liberality of Hadrian Sixteen columns of Pentelic marble, 60 feet high, and above 6½ in diameter, are all that now remain of the 128 which once adorned this magnificent building, one of the largest erected by the Greeks in honour of their deities (See Stuart iii p 83) This temple and its sacred enclosure were filled with statues two of the emperor were made of stone from Thasos, and two others of stone from Egypt, the statue of the deity was a chryselephantine (gold and ivory) statue of colossal size

The fountain called Callirrhoe, or Enneacrunus (the nine springs), the only source of fresh water in the neighbourhood, was only a short distance from the south east angle of the great temple There were wells as Pausanias remarks (i 14), all through the city, but this was the only source of pure water An aqueduct from Cephisia on the Cephisus was constructed for the use of the city by Hadrian and Antoninus his successor The reservoir of water was made at the foot of Anchesmos, and adorned with a frontispiece of four Ionic columns (See Stuart iii 94) This monument, of which two columns were standing in 1754, is now destroyed

Beyond the quarter called Hadrian's City, on the east side of the Ilissus, is the Panathenaic Stadium, first constructed by Lycurgus the orator, B C 350, and adorned with Pentelic marble by Herodes Atticus, in the reign of Hadrian All the marble has disappeared but part of the masonry at the south-east or circular end, and the *cavea*, or part destined for the exhibition of the Panathenaic games, remains Its length in the interior is 675 feet

On the hill of the Museum, which is separated from the Acropolis by a depression, we find the monument of the Syrian mentioned by Pausanias (i 25) According to the inscriptions it was erected by Philopappus, or in honour of Philopappus, the son of Epiphanes, in the reign of Trajan it contained three niches, two of which remain, in which were placed the statue of Philopappus himself, occupying the centre, of his grandfather Antiochus the last king of Commagene, and that of Seleucus Nicator, the founder of the dynasty of the Seleucidæ * (See Spon, ii 157, Amst ed ; Dodwell's *Travels*, i 392 ; and the view in Stuart, iii 99)

We have now noticed the chief existing monuments of Athens in the lower part of the city, with the exception of the small choragic monument of Lysicrates, erected about B C. 334 (the year of Alexander's expedition into Asia), vulgarly called the Lantern of Demosthenes it stands between the south-east angle of the Acropolis and the great Temple of Jupiter, and is or was partly walled up in the buildings of the Capuchin convent. This little edifice, which consists of a circular colonnade of Corinthian columns resting on a high quadrangular basement is only six feet in diameter on the central piece which rises from the cupola that crowns the colonnade a tripod originally stood

Of the great divisions of Athens which appear to be ascertained, we may mention the Inner Ceramicus adjacent to the Dipylum within the walls the Old Agora in the depression about the Areopagus, the New Agora on the north side of the Acropolis the gateway of which is already observed and three inscriptions still remain and the Limnæ or Marshes a low and originally a swampy part of Athens which contained the Lenæum, or Temple of Bacchus This last quarter of Athens was always considered inferior in salubrity to that north of the Acropolis

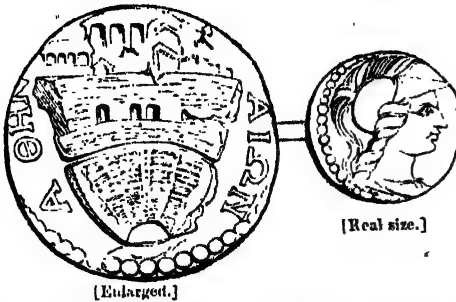
The Acropolis or the old Cecropian fortress of Athens is a rock, which rises abruptly from the plain with its sides naturally scarped except at the west end its greatest length may be about 1200, and its greatest breadth about 550 feet Before we describe briefly the edifices which stand on the platform of the Acropolis, we must notice those which stood immediately around its base

Along the base on the east side, extending southwards from the supposed site of the Prytaneum probably ran the street to which Pausanias gave the name of Tripods (i 20) This street, or quarter, was so called from a number of small temples or edifices crowned with tripods, to commemorate the victories gained by the Choragi in the neighbouring theatre The great Dionysiac Theatre, the place for dramatic exhibitions, was on the south-east side of the Acropolis the inner curve was excavated in the rock, and the part which projected into the plain was formed of masonry In the recess of this excavation, and above the theatre, Pausanias (i 21) describes a cavern, which was converted by Thrasyllus (B C 320), a victorious choragus, into a small temple A noble seated figure, of colossal size, now generally called the statue of Bacchus, which originally was placed on the entablature of the small temple, is in the Elgin Room (No 111) in the British Museum (See article Attic, and the plate in Stuart, ii 92) A brass coin of Athens, in the British Museum, represents the interior of the theatre, showing distinctly the seats for the spectators, with the caves (for there are more than one) just under the *south* wall of the Acropolis, rising above which we observe the Parthenon, and other buildings which stand on the platform of the rock.

The dimensions of this theatre cannot now be ascertained, but we may safely infer it was a very large one Dicæarchus expresses his admiration of its beauty.

On the south west side of the Acropolis is the site of the

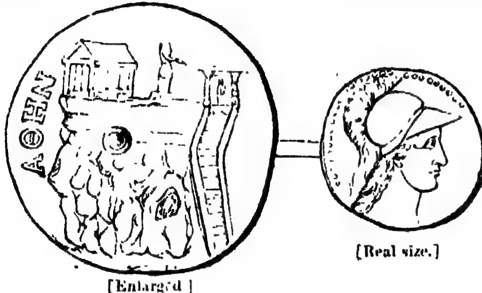
Dionysiac Theatre.



[Enlarged.] [Real size.]

Odeium, or Musical Theatre of Herodes Atticus, named by him the Theatre of Regilla, in memory of his deceased wife. This splendid monument of the munificence of a private individual was erected in the second century A.D., and was the finest building of the kind in Greece.

The grotto of Apollo and Pan, with the little spring, described by Pausanias (i. 28) as close to the Propylæa, is at the north-west angle of the Acropolis, and near some steps which led up to the Acropolis from the northern side of the city, as appears by the following coin from the British Museum, in which the Parthenon is apparently indicated.



[Enlarged.] [Real size.]

At the west end of the Acropolis, where alone the approach is practicable, the open space was filled up with the Propylæa, a magnificent work of Pentelic marble, which served both as an approach and a military defence to the citadel. The front or central part, which was flanked by two projecting wings, consisted of six fluted Doric columns, about 29 feet high, supporting a pediment, and approached by four steps. A vestibule, formed by six Ionic columns, placed in a double row and parallel to one another, stood behind this portico, and led to five openings or doors, of which that in the centre was the widest. The roof or ceiling of this vestibule rested on triple lengths of marble beams laid across the vestibule; the beams belonging to the two side-aisles rested respectively on a lateral wall, and the architrave of the nearest row of columns: these beams were about 22 feet long. Those lying across the central passage were about 17 feet long. On these beams rested the slabs of the ceiling, which was decorated with various ornaments. The five openings led, by steps, into a portico which faced the platform of the Acropolis, and had a front and pediment similar to that at the western entrance of the Propylæa. This beautiful work has suffered grievously since the occupation of Athens by the Turks. A great part of the eastern side of the Propylæa was destroyed, about 1656, by an explosion of gunpowder (Spon, ii. 107), that took place in the part between the five doors and the west front, which had been formed into a powder-magazine. Spon (ii. 106) describes the west front, with its pediment and the Ionic columns of the vestibule, as existing in 1676; but the upper part of the west front is now entirely gone. [See Stuart, iii. 104; and PROPYLÆA.]

The chief ornament of the Acropolis was the Parthenon (erected about B.C. 450-440), or Temple of the Virgin Goddess Minerva, which stood on the highest level of the Acropolis, and was built of the hard white marble of Pentelicus. This noble monument of antient art is now greatly damaged, though a few centuries ago it was probably in a state little worse than it had been for two thousand years before. It suffered from the ravages of war between the Turks and Venetians, and also more recently in our own times. The remnant of the sculptures which decorated the pediments, with many of the metopes and a large part of the frieze, are now in the Elgin collection of the British Museum. These sculptures form an epoch in antient art, and, together with the temple to which they belonged, will be the subject of a separate article. [See PARTHENON.] The position of this temple is indicated in the plan of the Acropolis: it is in 37° 58′ 2″ N. lat.; 23° 43′ 37″ E. long. (Captain W. H. Smyth.)

Of the other remains on the Acropolis, the most interesting is the building, which, consisting of various parts, is now commonly known by the general name of the Erechtheium. The site of this edifice is denoted in the plan: its details require to be treated separately. [See ERECHTHEIUM.] The south portico of the Pandrosium (which is a part of this edifice), instead of pillars, was supported by six female figures, about seven feet high, technically called Caryatides, one of which is now in the Elgin collection; and another had disappeared even when Stuart and Revett visited Athens in 1750.

Besides these, and other smaller edifices which adorned the Acropolis, it contained a prodigious number of statues and other works of art—some of colossal size, and others distinguished for their exquisite beauty. The bronze colossal statue of Minerva the Defender (Ἀθηνᾶ Πρόμαχος), the work of Phidias, is probably the statue represented on the coin which shows the steps of the Acropolis. The spear and helmet of this colossal figure (Pausan. i. 28) were visible towering above the Acropolis to those who approached Athens by sea, as soon as they had rounded Cape Sunium.

The Propylæa formed the defence of the western end of the Acropolis; the rest was surrounded by a strong wall. That on the north side was called the Pelasgicum, a term also applied to that part of the city immediately below it, and by Herodotus (v. 64) to the whole Acropolis. According to tradition, the north wall was built by the Pelasgi possibly the existing wall may be part of this original construction, which, in all probability, is the oldest existing monument of Athens. The south wall was built, or probably rebuilt, and strengthened by Cimon, the son of Miltiades, from whom it took the name of Cimonium; in some parts it is sixty feet high. Near this south wall, as Pausanias tells us (i. 25), was the representation of the wars of the giants, the battle between the Athenians and the Amazons, the battle of Marathon, and the defeat of the Gauls in Mysia by king Attalus I. [See ATTALUS.]

At the close of the late Greek war, Athens was in a dreadful state, being little more than a heap of ruins, and almost without inhabitants. At present, building is going on in the north part of the city, and if the unfortunate country of Greece can enjoy security, we may hope that, in a few years, the town will be in a more flourishing condition than it has been for many centuries. The excavations that are made for the purpose of erecting new buildings will probably determine some sites hitherto uncertain, and bring to light some valuable monuments of the best ages.

The authorities which may be consulted for the topography of Athens are very numerous: Strabo, book ix.; Pausanias, book i.; with the scattered passages of other Greek and Latin writers: Spon and Wheler; Chandler's *Travels*, of which there is a French translation, with notes, by B. du Bocage; Stuart's *Athens*, 4 vols. folio, re-published by Priestley and Weale, London, 1827; Leake's *Topography of Athens;* Wilkins's *Atheniensia;* and *Elgin Marbles*, 2 vols. 12mo., published by the Society for the Diffusion of Useful Knowledge, in which these and other authorities are more particularly referred to: see also *Encyc.* of Ersch and Gruber, art. *Attica*. 1821.

History of Athens.—The origin of civil communities is generally unknown, and that of Athens does not form an exception to the remark. Our object here will be to give a brief sketch of the history of this state, referring to the particular heads for a more detailed account of the most important periods and events.



[Athenian coin; silver. British Museum.]

The first period of Athenian history, ending with the war of Troy, is of a mythical character. Actæus (Pausan. i. 2) was the first king of Attica. Cecrops, according to one fable, was a native of Attica, who married the daughter of Actæus, and succeeded to the monarchy. According to another fable, Cecrops was an Egyptian, who brought from Egypt the arts of social life, and laid the foundations of the religious and political system of the Athenians. The name of Cecrops, whatever may have been its origin, was perpetuated among the Athenians to the latest epoch of their existence as a people. Of the successors of Cecrops, Erechtheus the first, otherwise called Erichthonius, was of divine or unknown descent; his name also survived and retained a place in the religious observances of Athens. In the reign of Pandion, the son of Erichthonius, Demeter (Ceres) was wandering on earth in quest of her lost daughter; out of gratitude for information about her child, the goddess taught Triptolemus of Eleusis the art of agriculture, and the Rharian plain waved with a harvest hitherto unknown to man. A second Erechtheus fought with the Eumolpidæ of Eleusis, and lost his life. Ægeus, the son of a second Pandion, in course of time came to the throne, and his son Theseus, as he was the last, so he was the greatest of the Athenian heroes. Theseus was the friend of Hercules and Pirithous; and the venerable Nestor, who assisted the Greeks with his counsels at the war of Troy, had fought, when a young man, in the same ranks with Theseus. The mythological fame of Theseus was perpetuated by his martial exploit against the bull of Marathon, by his descent to the infernal regions, his voyage to Crete, and his combat with the Centaurs. As the reputed founder of the Athenian polity, who united in one confederation the twelve hitherto independent states or cities of Attica, established by Cecrops (Strab. p. 397), he appears to be invested with the character of an historical personage. (See Thucyd. ii. 15.) Theseus is also said to have instituted the great quinquennial festival of the Panathenæa, in commemoration of the political union of all Attica. (Pausan. viii. 2.) To the latest period of their history the Athenians retained the grateful remembrance of their hero, and the beautiful temple, which is still called the Theseum, has perpetuated to the present day a name which belongs to a period when the truth of history is wrapped in the impenetrable veil of the myths of the Greeks.

The Athenians sent fifty ships to the war of Troy under the command of Menestheus, who had driven Theseus from Athens; but neither the general nor his soldiers occupy a conspicuous place among the worthies of Homer.

If we endeavour to trace the history of the Athenian people, we find the obscurity of their origin expressed by the statement that they were *autochthones*—people coeval with the land which they inhabited. Herodotus (i. 56) says that the Athenians were originally Pelasgian, and that they became changed into Hellenes (Greeks). Such a change implies the conquest of the country by one race while it was already in the possession of another: it implies also either the amalgamation of the conquered and the conquering races, or the extinction of those who were compelled to yield. The former we believe to be supported by more probabilities. Xuthus the son of Hellen, married a daughter of the second Erechtheus, and became the father of Achæus and Ion: thus the name *Ionian* became attached to the Attic soil; and we have the historical fact, that the names of the four tribes which existed till the time of Clisthenes were supposed to be derived from the names of the four sons of Ion. (Herod. v. 66; comp. Pausan. vii. 1.) "The Athenians," says Herodotus (viii. 44), "during the occupation by the Pelasgi of the country now called Hellas, were Pelasgi, with the distinctive name of Cranai. From Cecrops, they received the name of Cecropidæ; and upon Erechtheus succeeding to the royal power, their name was changed to Athenians. After Ion, the son of Xuthus, had become the leader of the forces of the Athenians, the people got the name of Ionians." In the fable of Poseidon and Athena (Neptune and Minerva) contending for the honour of giving a name to Athens, Poseidon, the god of the Ionians of Helice and the national god of those who were afterwards the Ionians of Asia, contended, though unsuccessfully, against Athena, the primitive deity of the country. Yet the name and worship of Poseidon was not neglected in Athens; the Erechthæum of the Acropolis preserved the remembrance of the contest, and the altar on which it was usual to sacrifice (Pausan. i. 26) both to Erechtheus and Poseidon, indicated that the mythical king was the representative of the deity whose worship strove for the supremacy. Among the various names by which Athens was known, we find that of Posidonia, or the City of Neptune (Strabo, ix. 397); and the name of Athens itself was given to eight different places. (See Steph. Byzant. Ἀθῆναι.)

The fable of the two deities contending for Attica is represented on a coin of Athens.



The remembrance of the Pelasgi was retained in the name of the northern wall of the Acropolis, of which they were the architects, and in that part of the city which was below it in the plain. Tradition, however, reported that the Pelasgi, or that portion of the old inhabitants which did not mix with the new comers, were finally driven out of Attica and retired to Lemnos. The connexion between the Lemnian and Thracian Pelasgi and the Athenians seems sufficiently indicated by old traditions and other circumstances. The Pelasgi were in Attica before the time assigned to the reign of Cecrops; and it has been remarked (Lasch and Gruber, *Encyc. Athen*) that the analogy of the name Pallas to the Thracian peninsula Pallene, and of the mount Athos to the name Athene, appears to indicate the Thracian origin of these Athenian denominations.

The line of Athenian kings, whatever may have been its historical commencement, terminated with Codrus, son of the Messenian Melanthus. Melanthus, himself a fugitive, had received the Ionians who fled from the Peloponnesus before the victorious Heraclidæ (B.C. 1104), partly out of regard for the sake of Ion, that is, because they were Ionians, and partly because the Athenians wished to strengthen themselves against the Dorians. On the death of Codrus, who fell during an invasion of Attica by a Peloponnesian army (B.C. 1068), his sons disputing about the right of succession, referred the matter to the oracle of Delphi, who decided in favour of Medon. Neleus, the other son, left his country at the head of a colony chiefly Ionian refugees, and with them founded the twelve Ionian states of Asia. Thucydides, in his brief sketch of the early history of Greece, instead of attempting to unravel the web in which even in his time it was involved, gives only these as the general results of his inquiries into the earliest state of his native country. The sterility of Attica offered no temptation to an invader, and it consequently had not, like the more fertile parts of Greece, a continual change of inhabitants; the security which it enjoyed made it a place of refuge for those who were driven from other states; and the increase of wealth and population led to the colonization of Ionia and the greater part of the islands of the Ægean after the war of Troy. (Thucyd. i. 2, 12.) Herodotus (viii. 46) has furnished us with a list of those islands, which, at the time of the great invasion of Xerxes, came to the assistance of their mother state. They are Eretria and Chalcis in Eubœa, both founded before the war of Troy (Strabo, 446), and the islands of Ceos, Naxos, Siphnos and Seriphos. The circumstances of the Athenians at this early period directing their attention to the colonization of islands, tends to show that they were always a maritime people, though the foundation of their naval power is referred by their own historians to the epoch of the Persian wars.

With the death of Codrus the office of king ceased in Athens, and the supreme executive power was vested in an archon, or governor, whose office, from being at first hereditary and for life, was by degrees changed into a decennial, and finally into an annual office. When the last change took place, a further alteration was made by distributing the duties of the archon among nine magistrates, instead of giving them all to one. [See ARCHON, CODRUS.] From the death of Codrus to the legislation of Solon, Athenian history presents but few and doubtful facts; and though the personality of Solon and his framing of a code cannot be matters of doubt, the events of his life belong to that epoch where the records of history are still obscure and disputed. Solon was the contemporary of Amasis, king of

Egypt, which country he is said to have visited; of Crœsus, king of Lydia, whose pride and vanity he rebuked, and of the first Cyrus, the founder of the Persian empire. With the legislation of Solon (B C. 594), Athenian history begins to assume a more definite form, and the same epoch marks the historical commencement of that series of events which brought the inhabitants of the countries east of the Tigris into connexion with the south of Europe. Tradition assigned to Theseus the credit of laying the foundation of their democracy (Plut *Thes* c 25.) Of the regulations (*θεσμοί*) of Dracon (B C 624), the predecessor of Solon in legislation, we know little, except that his criminal code was so severe as to require an almost entire change. [See DRACON] The constitution of Solon was designed to maintain the chief political power just where it was—in the hands of the rich whom he divided into three classes, according to their property and to them alone he gave the privilege of filling public offices but by allowing the fourth or poorest class to be members of the ecclesia, and to be the dicasts or jurymen in the courts of justice, he laid, perhaps unintentionally the foundation of a pure democracy Beside the nine Archons, the administration was managed by the senate (βουλή) of 400, each of the four tribes supplying 100 members [See AREOPAGUS SOLON] The usurpation of Pisistratus (B C 560), who by fraud and force seized on the supreme executive power did not change the laws of Solon, it is said though it certainly must have changed for the time at least a great part of the constitutional forms of Athens Under the title of tyrant (τύραννος) a term at that time not necessarily implying the abuse of power, Pisistratus governed with equity and moderation He was twice expelled from Athens but a battle on the field of Marathon first secured his power which he transmitted to his son Hippias [See PISISTRATUS] His successor had neither the ability nor the good fortune of his father and he was finally driven out of Athens (B C 510) by the aristocratical faction of the Alcmæonidæ who by corrupting the oracle of Delphi brought against Hippias the power of Lacedæmon. Cleomenes the rival king of the Lacedæmonians was employed on this business Hippias being expelled retired with his family to Sigeum on the Hellespont a possession which had been acquired by the arms of his father Pisistratus and his sons held the tyranny of Athens for thirty six years (Herod v 65) during which time we may reasonably infer that all tendency towards a democratical form of government was suppressed but the arts became flourishing then and ... the foundation of the temples of Apollo Pythius and Jupiter Olympius is ascribed to the period of this government The downfall of this ancient (see Herod v 62) and powerful family was the signal for the commencement of party strife and for the consequent development of the democratical principle

Two factions now divided Athens headed respectively by Clisthenes of the family of the Alcmæonidæ and Isagoras the son of Tisander [See CLISTHENES] Clisthenes changed the number of tribes (φυλαί) from four to ten and by that and other measures he gained the favour of the people The senate (βουλή) of 400 was changed into one of 500, fifty members being annually chosen from each tribe His rival called in to his aid Cleomenes, who though at first successful was finally baffled in his attempts on Athens This invasion of Cleomenes is worthy of notice for having led to the first recorded communication between the Athenians and Persians The Athenians wishing to strengthen themselves against another threatened invasion sent ambassadors to Artaphernes the Persian governor of Sardis The haughty satrap, after asking who the Athenians were, and where they lived, promised help on condition of their giving to the king of Persia earth and water the usual signs of submission required by the great king The ambassadors incautiously assented, and, on their return home were well abused for their pains

The issue of the Spartan attack, which was so much apprehended by the Athenians, was more favourable than they had anticipated: the Corinthians, who had joined in the invasion, changed their minds and went home, the two Lacedæmonian kings, Cleomenes and his colleague Demaratus, quarrelled at Eleusis just before a battle was expected, and the Peloponnesian army consequently dispersed, and the Athenians were thus left at liberty to deal with the Bœotians and Chalcidians, who, acting in concert with the Peloponnesians, had crossed the frontier. The Athenians gained a complete victory over the Bœotians and Chalcidians, crossed into Eubœa, and placed four thousand Athenian colonists in the territory of Chalcis Thus the Athenians, who were said to have originally colonized Chalcis, got a firmer footing in this fertile island, which was on subsequent occasions considered more important than most of their foreign possessions

About this time, Hippias the exiled tyrant came to the Peloponnesus, on the invitation of the Lacedæmonians, and urged his claims to be restored to the sovereignty of Athens Though supported by the leading state of Peloponnesus, Hippias failed in obtaining the consent of the rest of the Peloponnesian confederacy and he retired to Sigeum, where he endeavoured to maintain his desperate cause by exciting Artaphernes against the Athenians An event soon happened which was favourable to his views The Athenians at the instigation of Aristagoras of Miletus sent twenty ships to which the Eretrians of Eubœa added five, to assist the Ionian Greeks who had revolted against Darius The confederate forces succeeded in burning Sardis, which was the immediate cause of the invasion of Greece An immense armament under the command of Datis and Artaphernes crossed the Ægean, besieged and took Eretria in Eubœa and landed on the opposite coast of Attica The aged exile Hippias led the Persians to the plain of Marathon the scene of his father's victory, a spot well adapted for the movements of the cavalry in the Asiatic army The Athenians supported only by the Platæans, under the command of Miltiades defeated the formidable army of the invaders (B C 490), who retreated in their ships across the Ægean [See DARIUS MARATHON]

Ten years later, Xerxes the son of Darius led in person against Greece one of the largest forces of which we have any trustworthy record The army was accompanied by the fleet which attended its movements along the coast and advanced through Thrace Macedonia and Thessaly to the pass of Thermopylæ where the gallantry of Leonidas for a ... [illegible] The treachery of the Bœotians and the ... [illegible] and lukewarmness of the Peloponnesians allowed the Persian army to march unopposed through Bœotia into Attica while the fleet followed the coast and took its station in the Salamis The Athenians were compelled to leave their city to the invaders and embark on board their navy Fortunately for them in this contingency they had an navy a considerable naval force, which the ... [illegible] had raised for the ... [illegible] island of Ægina In the sea fight of Salamis (B C 480) the Persian fleet was entirely ruined by the combined naval force of the Athenians and the other Greeks and the Persian king made an ignominious and hasty retreat into Asia leaving behind him Mardonius with about 300,000 men Mardonius having entered Athens a second time with the Persians and made a vain attempt to detach the Athenians from the alliance ... [illegible] and ... [illegible] all that Xerxes had left untouched, and reduced Athens to a heap of ruins In the year after the battle of Salamis Mardonius was completely defeated at Platæa by the combined Greek forces under the command of Pausanias the Lacedæmonian [See XERXES SALAMIS, PLATÆA.]

The period between the battle of Platæa (B C 479) and the commencement of the Peloponnesian war (B C 431) is one of the most interesting in Athenian history but it has not been transmitted to us with the accuracy or detail which we desire Though the Persians reduced Athens almost to a heap of ruins it is probable that they did not completely destroy all the public buildings Herodotus (v 77) saw the fetters of the vanquished Bœotians and Chalcidians suspended on some walls on the Acropolis, which were scorched with the Persian flames Still we may consider the city as substantially rebuilt after the year B C 479, and it would be difficult to point out any monument now existing at Athens of a date prior to the invasion of Xerxes (though there were some existing in the time of Pausanias) except it may be the north wall of the Acropolis, which is called the Pelasgicum Under the direction of Themistocles the walls of Athens were rebuilt the Peiræus was fortified, and the Athenians were taught to look to their navy as the true means of defence against their enemies By a law of Aristides, passed B C 479, the constitutional forms were so far changed, that every citizen was eligible to all the offices in the state, and thus the democratical principle received a still further development its direction and control belonged

to the orator and the successful commander, in whose persons from this time forward, and indeed probably from a still earlier period, was centered the real executive power. [See ARISTIDES.]

After the battles of Platæa and Mycale, and the capture of Sestos on the Hellespont, it was still thought desirable among the confederate Greeks to prosecute the war against Persia. The Lacedæmonians, hitherto considered the head of the confederation, were little disposed for foreign service, and Pausanias, their commander on the Hellespont, completely alienated all the allies by his absurd and tyrannical behaviour. The lead was thus transferred to the Athenians (B.C. 477), who in a short time contrived to turn this to their own profit. A certain quota or rating of men and ships had been fixed for all the allies; some who were averse to service commuted their contingent of men and ships for a regular money payment, with which the Athenians formed and maintained a force by which they ultimately reduced many (who were hitherto allies) to the condition of dependent and tributary states.

Thus arose the Athenian naval supremacy, which for a time gave them a more extensive empire than any Grecian state ever acquired, till the time of Philip and his son Alexander. The efforts and the success of this little state till the thirty years' truce (B.C. 445) were truly surprising. Cimon, the son of Miltiades, took Eion on the Strymon, defeated the Persians (B.C. 466) in a great battle on the Eurymedon in Pamphylia, took Naxos, and carried the Athenian arms as far as Cyprus, where he died (B.C. 450). [See CIMON.] For six years (B.C. 460-455) the Athenians aided the Egyptians in their rising against the Persians, in the reign of Artaxerxes. They got possession of a large part of Memphis, the capital of Lower Egypt, and were at one time actually masters of the country. Their final defeat was apparently owing to the want of a vigorous commander, and partly, no doubt, to the want of supplies, which Athens could ill afford to send to such a distance, while constantly engaged in wars with her immediate neighbours. Under the command of Tolmides and Pericles, the Athenian empire at home had received an apparent increase of strength by the success of their arms. The extent of their successes is shown by what was given up. On making the thirty years' truce, Athens surrendered the province of Achæa, Nisæa and Pegæ the two ports of Megaris, and Trœzen; all of them important positions in the Peloponnesus. But their empire in more remote parts had received considerable accessions before the commencement of the Peloponnesian war. Amphipolis on the Strymon had been successfully planted as an Athenian colony: Potidæa, on the isthmus of Pallene, had fallen into their hands; numerous islands in the Ægean acknowledged their supremacy; and Byzantium, the key of the Euxine, was in their possession, and gave them the command of the supplies of grain from the northern shores of that sea.

The wealth which both the state and individuals acquired during this period led to the extension and embellishment of Athens. Cimon built that temple of Theseus which still exists, and embellished the Academy and the Agora. During the time of his greatest influence, probably after the battle of Eurymedon, the Long Walls were built. Next to Themistocles and Cimon in order of time, and before them as the beautifier of his native city, we must place Pericles, the son of Xanthippus. Under him were built the Parthenon, the Propylæa of the Acropolis, and the great temple of Demeter at Eleusis. The genius of Callicrates, Ictinus, and Phidias, executed the noble plans of the orator, statesman, and warrior, who now wielded the power of the democracy; and from the united efforts of the architect and the sculptor arose the most finished buildings that the world has ever seen. [See PERICLES.] Athens, which hitherto does not appear to have had any pre-eminence in the imitative arts, was now adorned with public edifices, in which architecture and its sister sculpture, with painting, contributed to adorn the public worship of the state, and to humanize the citizens. Nor must we omit to notice the progress which the dramatic art made during this period. Tragedy, if not indigenous in Athens, which however seems most probable, found there at least its most complete development. (See Schlosser, *Univ. Hist. Uebersicht.* I. *Th.* 2. *Abth.*) Æschylus, who had fought at Marathon and Salamis, infused into his compositions all the energy of a warrior. Sophocles and Euripides laboured to improve and perfect the drama by a more elaborate plot, and by giving it more of a moral and philosophical character. The great Dionysiac theatre, which was probably commenced early enough to witness the tragedies of Æschylus, was formed expressly for the exhibition of the drama. Comedy also, said to be of Sicilian origin (but perhaps rather of Greek Megaric birth), found a home in Athens, where Eupolis, Cratinus, Aristophanes, and others of the old comedy, while they tried to amuse the people and secure the honours of the prize, often made their pieces the vehicles of political opinions, of personal satire, and sometimes of the coarsest invective and abuse. Besides the drama, history, philosophy, and eloquence, though they may not have been of Attic origin, took root during this period, and became almost her exclusive property. The development of the mathematical and physical sciences belongs to a later period in Grecian history, and hardly forms a part of the literary history of Athens.

The Peloponnesian war, which commenced B.C. 431, forms an important period in Athenian history, and requires a separate consideration. [See PELOPONNESIAN WAR.] Athens commenced the contest with all the advantages of long experience in warfare, a powerful navy, a large revenue, and numerous subject or allied states. Sparta, at the head of the Peloponnesian confederation, and the most powerful military state in Greece, was urged, both by national hatred and by fear of future danger, to attempt to crush the increasing power of her rival. The war, in its origin, and still more in its progress, was a war both of national and political animosities: the Dorians, with Sparta at their head, and the aristocratic principle, were matched against the Athenians, the head of the Ionian nation, and the great advocates of democratic forms. In the second year of the war Athens suffered from a dreadful pestilence, the physical and moral evils of which have been described by Thucydides (lib. ii.), with the minuteness of an eye-witness and the spirit of a true philosopher. The great expedition to Sicily, undertaken (B.C. 415) in the wildest spirit of popular miscalculation, tended to bring the war to a termination, though the struggle was still maintained longer by the Athenians than their enemies anticipated. The defeat of the Athenians by Lysander at Ægospotami on the Hellespont, prepared the way for the blockade of Athens, which surrendered to the Spartans B.C. 404. The Long Walls and the fortifications of the Peiræus were demolished to the sound of musical instruments, and the Athenians, whose surrender had been hastened by the extremities of famine, even consented 'to give up all their ships except twelve; to consider the same people their friends and enemies who were the friends and enemies of the Lacedæmonians; and to follow the Lacedæmonians by sea and by land, wherever they might choose to lead.' (Xen. *Hellen.* ii. 2.)

Athens, chiefly through the arts of Theramenes, an Athenian, who transacted the business of the surrender with the Spartans, was placed under the control of thirty men, who are generally called the Thirty Tyrants. They were nominally appointed to frame a new constitution (*Hellen.* ii. 3), which they never did, but directed the senate (βουλή) and all functionaries according to their sole pleasure. Union did not long continue among the members of this body. Critias, having quarrelled with his colleague Theramenes, accused him before the senate, who were awed into submission to the desperate measures of Critias by the sight of a body of men armed with daggers. Theramenes was compelled to drink poison, and the measures of the Thirty became still more oppressive and cruel. But Thrasybulus, an Athenian exile, by his vigour and prudence brought about a counter-revolution, after defeating the Thirty at the Peiræus, and restored the constitutional forms of the Athenian state (B.C. 403), which had endured eight months of almost unparalleled tyranny. [See THERAMENES, THRASYBULUS.]

The subsequent events of Athenian history, to the time of Philip and Demosthenes, require only a short notice here. Intrigue on the part of Persia, and, still more, dissatisfaction at the Spartan supremacy, united Corinth, Athens, Thebes, and other cities against the Lacedæmonians. Agesilaus was called from Asia to restore the fortunes of his country. The battle of Coroneia (B.C. 394), though it might be a victory to the Spartans, did not leave them in the undisputed possession of their supremacy by land; and the battle of Cnidus was fatal to their dominion by sea. Conon, an Athenian commander, who had escaped from the disastrous results of the battle of Ægospotami, fled to Evagoras, king of Crete, where he stayed till a favourable opportunity placed him at

the head of a combined Greek and Persian fleet. About the same time as the battle of Coroneia, he entirely destroyed the Lacedæmonian fleet under the command of Pisander, off Cnidus in Asia Minor. This event restored the naval supremacy of Athens. Conon appeared before the Peiræus with the fleet which the Persian satrap Pharnabazus entrusted to him, and a sum of money for rebuilding the walls. To Conon belongs the glory of restoring, after a victory over his enemies, the bulwarks of Athens (see Demosth. *Leptin.* cap. 16), which Themistocles had first erected by deceiving the Lacedæmonians. [See AGESILAUS, CONON.] The peace of Antalcidas (B.C. 387 or 386) marks an epoch in the general history of Greece, though the real efficiency of it for promoting peace was just as worthless as if it had never been made.

The period to the battle of Mantineia (B.C. 362) is one of little interest for Athenian history. Thebes, hitherto a second-rate power among the states of European Greece, contended, under Pelopidas and Epaminondas, with the Spartans for the supremacy of Greece. Athens, during this period, played an unimportant part, though her naval superiority still protected her against the Lacedæmonians, and made her assistance of some weight in the balance. In B.C. 376, Chabrias defeated Pollis, the Lacedæmonian commander, who was cruizing about Ægina, Ceos, and Andros, with the view of stopping the Athenian grain ships with their supplies of corn, which were waiting at Geræstos in Eubœa; and Timotheus gained another naval victory over the Lacedæmonians in the same year. [See CHABRIAS.]

The result of the wars between Thebes and Sparta was, that there remained no state in Southern Greece which possessed a decided political superiority. Athens, still powerful by sea, was detested by the dependent towns and islands for the oppressive exactions made both by the state itself and by the commanders of the fleets. Cos, Rhodes, Chios, and Byzantium united in a league (B.C. 358); Chabrias fell in an attack on Chios (B.C. 357), and an attempt to reduce Byzantium also failed. This, which is sometimes called the Social War, lasted three years. But at this time a northern power, Macedonia, which hitherto had exercised comparatively little influence south of the straits of Thermopylæ, gradually began to mingle directly in the affairs of Greece. The Holy war, or Phocian war [see PHOCIAN WAR], as it is also called, which arose from apparently small beginnings, brought the Athenians, who joined the Phocians, into a contest with the Thebans and their allies, who professed to carry into effect the decrees of the Amphictyons (B.C. 356). A long and bloody war which ensued was favourable to the views of Philip of Macedon, who, after setting his foot firmly in Thessaly, soon got an influence in the Amphictyonic council, and thus gained the opportunity of forming a party in Athens, and putting an end to the war (B.C. 346), which had lasted ten years. The history of Athens, during the period of Philip, requires a minute detail [see PHILIP, DEMOSTHENES]. The victory of Chæroneia (B.C. 338), in which the Athenians and Thebans, with their allies, were defeated by Philip, completely established the Macedonian supremacy in Greece. In a public assembly at Corinth, Philip was chosen generalissimo of the Greek nation in the intended war against Persia; and after his assassination (B.C. 336), the same honour was conferred on his son Alexander, who carried into effect that which his father had designed.

From the age of Pericles to the time of Alexander, Athens, though almost constantly engaged in wars, had not neglected to cultivate those arts which have associated her name with the history of civilization. Her public buildings were continually increasing in number and magnificence, which was mainly due to Lycurgus, the orator, the son of Lycophron, who built the Panathenaic Stadium, and provided for the security of the city by the magazines on the Acropolis, and by the dock-yards in the Peiræus. He is said also to have completed the great Dionysiac theatre, and to have repaired the Odeium of Pericles. Public speaking, without which there is no road to political power in a democratical state, had been cultivated in Athens ever since the downfall of the family of Pisistratus restored the constitutional forms; and Themistocles, Aristides, and others, owed their influence to their skill in oratory as well as to their abilities or character. Antiphon [see ANTIPHON] first formed oratory into an art at Athens, or was the first who professed to teach it; and the introduction about the same time of the dialectics of the sophists, of which both oratory and philosophy availed themselves, made the study of oratory an indispensable branch of education for all who aspired to eminence in the state. The school of Isocrates was of a different character from those which preceded it, being almost exclusively devoted to teach the formation of a phrase, and to the rhythm of expression. Demosthenes, the great master of Athenian eloquence, was trained in the most laborious discipline of that period; from Isocrates he learned to form a rounded sentence; Isæus instructed him how to handle the matter; and his own genius furnished him with the fervour and the impulse of a complete orator.

After the time of Sophocles and Euripides, we find no tragic writer who enjoyed any high reputation among the Athenians, with the exception perhaps of Agathon, of whose works a few fragments remain. But the dramatic art was by no means neglected. Comedy assumed a new form in the hands of Alexis and Antiphanes, whose fecundity equalled that of any former writers. The actors themselves rose to greater importance during this period, not only because their art was valued for the pleasure which it gave; but also for its close connexion with the successful practice of eloquence, the path to political rank. The actor gained wealth by his profession, and became also the instructor of the orator in that which we may call the dramatic part of his study. Demosthenes himself was indebted to the actors Satyrus and Andronicus for his superiority in action. On one occasion, we find Aristodemus, an actor, sent on an embassy to Philip, partly perhaps because the Macedonian king was fond of his art, partly, also, because Aristodemus could assume on all public occasions as dignified a manner as that which characterized Philip himself. (See Schlosser, i. *Th.* 2 *Abth.*; and ÆSCHINES.)

Anaxagoras introduced into Athens the speculative philosophy of the Ionian school, and he found a pupil and supporter in the great Pericles, and in the poet Euripides. From this period we may consider philosophy as in opposition to the popular creed, since the speculations on the origin of things and the nature of man were entirely at variance with those symbolical forms which constituted a chief part of the exterior shape of religion, and, in the eyes of the people, its substance. From the Eleatic school, which was early divided into two branches, sprang the subtle dialectic which established itself at Athens. Socrates himself was a master in this science; his school, chiefly known through his disciple Plato, requires a history by itself. [See SOCRATES, PLATO.] The teaching of Aristotle belongs to the next period. [See ARISTOTLE.] In historical writing, Athenian literature has transmitted to us the history of the Peloponnesian war by Thucydides, a work in which the dryness of the annalistic style is relieved by the profound reflections, which the author generally puts into the mouths of his speakers. Xenophon, a pupil of Socrates, has left us, in his Anabasis, one of the most attractive military histories that ever was written, a model of simplicity and good sense, in this respect equal to the Commentaries of Cæsar, but superior to the work of the Roman general in all that renders a narrative interesting. Xenophon was also an historian, a philosopher, and an economical writer (as the term was then understood), but his fame must rest on his history of the Expedition of the younger Cyrus, and perhaps on the philosophical romance (the Cyropædeia) which has disguised the history of the first Cyrus, the founder of the Persian monarchy.

Various modern writers have attempted to determine the population of Athens from the few data left by antient writers, and from such other considerations as appear applicable to the question. Their results are very different, as might be expected in a case where even an approximation to truth is not attainable. We may always reasonably distrust the accuracy of antient statistics; and when to this we add the discrepancies in extant authorities, and the errors to which they have been exposed from transcription, we cannot place any confidence at all in the results that have been deduced as to the antient population of this city. The question is also mixed up with the population of the whole province [see ATTICA], and it is not easy to assign the proportions belonging to the capital and to the rest of the country. Colonel Leake (*Topog. of Athens*, p. 380) states the population of the city at about 116,000, in the most flourishing times of the republic: he makes the citizens, 40,000; the Metœci, or resident aliens, 13,000; the slaves, 53,000; and 'paupers and others of Athenian race, not having rights of citizenship,' 10,000. We can hardly express a positive opinion as to the probability of 116,000 being above or below

the truth; but various objections may be made to the reasons by which the details of this investigation are supported. Boeckh (*Public Economy of Athens*, ii. p. 86, Trans.) has estimated the greatest population of the city and the ports at 180,000. But the only fact of any weight on which this assumption rests, is the circumstance of the houses in Athens being above 10,000 in the time of Xenophon. The author, to give some additional degree of probability to this result, estimates the population of the mining district at 20,000, which, added to the population of the city and ports, makes a total of 200,000. He then assumes the area of the city and ports, together with the mining district, at thirty-two square miles, which he thinks will not give too great a population for each square mile. But these considerations only obscure the question. Boeckh estimates the circuit of the city and sea-ports at 200 stadia, which is considerably above the truth [see ATHENS, p. 11]; but he says nothing of the *area* of the city and the ports, which certainly was not above three square miles. We have thus twenty-nine square miles for the mining district, which may be above or below the truth; but as we do not know the dimensions of this district, except that it was reckoned sixty stadia in one direction, nothing positive can be said about it. Though Boeckh's arguments as to the population of the city are inconclusive, we cannot help thinking that the population which he assigns to it is more in harmony with all known facts than the lower estimate of Colonel Leake. Mr. Clinton (*Fasti Hellenici*, p. 394) is disposed to assign about 160,000 inhabitants to the city and the ports; but some of his arguments are liable to objection, and especially so far as they rest on his assertion 'of the space enclosed being larger than Paris, and nearly equal to Rome in the time of Augustus.' That this could not be the case will be evident, if we compare, as Colonel Leake has not neglected to do, the *form* of the walls of Rome with those of Athens; the *circuit* of the two walls might be nearly equal, but the space included was very different.

The population of the city depended, to a considerable amount, on foreign corn, which was derived from Eubœa, the north coast of the Black Sea, and also from other places. The corn trade between the Black Sea, and Ægina and the Peloponnesus, existed as early as B.C. 480 (see Herod. vii. 147), and perhaps earlier. In the time of Demosthenes (*Oration against Leptines*) the importation of corn into Attica was very large, and the regulations respecting this trade formed an important part of the public economy of the city.

The political history of Athens, during and after the age of Alexander, is of little importance. The city was often involved in the revolutions and movements of the Macedonian kingdom; but on the whole it enjoyed internal tranquillity to the time of the Roman occupation of Greece, which it owed chiefly to the control exercised by the various rulers of Macedonia. Soon after the death of Alexander the Lamian war broke out, in which the city showed almost the last feeble spark of that military spirit which once led it to triumph over the armies of the east. The result of the campaign was the occupation of Munychia by a Macedonian garrison (B.C. 322); and the death of Phocion, which took place soon after, left Athens without a representative of her antient statesmen. [See ANTIPATER, LEOSTHENES, and LAMIAN WAR.]

Cassander, having got possession of Athens (B.C. 317), appointed Demetrius of Phalerum, supported by a Macedonian garrison, the governor of the city. During ten years Demetrius secured to Athens, if not prosperity, at least peace: under him Philo the architect added a portico to the great temple at Eleusis, and built the large arsenal in the Peiræus. Demetrius was a mere rhetorician, and a pretender to philosophy; but he was the friend of the comic poets Diphilus and Menander, the ornaments of the new Athenian comedy. Under his administration the character of the Athenians sunk still lower; and public morals, perhaps never pure in Athens, at least since the days of Pericles, became prepared for the excesses of Demetrius Poliorcetes, who found the corrupted Athenian ready to anticipate his most extravagant wishes and demands. Demetrius the Phalerian was expelled (B.C. 307), and the forms of the constitution were for a time revived.

Demetrius Poliorcetes was a soldier, a man of talent, and a lover of pleasure. During his second residence at Athens (B.C. 301), he received the honours which were due only to the gods; temples were erected to his mistresses; nor did the abode of the Virgin-Goddess herself on the Acropolis escape desecration from the unbridled licentiousness of this second Alcibiades (Plutarch, *Demetr.* 23, 24). Antigonus Gonatas got possession of Athens for a short time (Pausan. 3, 6) B.C. 269.

During the wars between the last Philip of Macedonia and the Romans, the Athenians, together with Attalus, king of Pergamus, took the part of the foreign invaders. Athens, though weak in the field, was still strong within her walls; the Macedonian king attacked both the Peiræus and the city before the Romans could come to their assistance (B.C. 200); but failing in his object, he turned his vengeance against the suburbs, and the numerous beautiful temples which adorned the Attic plain. 'Not content (Livy, xxxi. 26) with destroying the temples and statues, he broke in pieces the very marble of which they were built.' There can be no doubt that the invasion of Philip was most destructive to the monuments of Attica, though Eleusis and Athens itself escaped. [See PHILIP.]

The next great calamity of Athens was its capture by the Romans under Sulla (B.C. 86). Athens had espoused the cause of Mithridates, and admitted his general, Archelaus, into the Peiræus. The city was taken by assault (Plut. *Sulla*, 14), and the Roman soldiers made the streets swim with Athenian blood. This was the first time that the fortifications of Athens had been forced by an enemy. Sulla demolished the walls of the Peiræus, together with the great arsenal of Philo, and from this time the commerce of Athens was annihilated. [See SULLA.]

Under Roman government, Athens, though she had lost her political power and her commerce, was still the centre of the arts and of philosophy, and a favourite residence of the wealthy Romans. From the time of Julius Cæsar to that of Hadrian it was occasionally honoured by the visits of the masters of the Roman world, and to them it owed much of that splendour which Pausanias admired in the second century of our æra. As a school of learning, it was frequented by the Romans who aspired to perfect themselves in the language and philosophy of Greece. The poet Horace was a student here when the civil wars broke out after the assassination of Julius Cæsar: and Cicero addresses one of his moral treatises to his son Marcus, who was then studying here under Cratippus. (See *Officia*, lib. i. cap. 1.)

'No other city ever enjoyed her fortune in the prosperity which attended her so long after the loss of her political importance. Even the respect which has been paid to Rome, since the decline of her temporal power, is but a feeble representation of that enjoyed by Athens during five centuries, among all the nations into which Grecian civilization had penetrated. We cannot have a stronger proof of this fact than that the most remarkable buildings erected in Athens, after the decline of her naval power, were executed at the expense of foreign potentates.' (Leake's *Topography of Athens*, pref. p. xxv.) To compress within reasonable limits the history of Athens, from the epoch indicated in the above extract, we shall arrange in chronological order those events which are worthy of record as denoting the influence or the interest of foreign powers in this city, which the world at one time regarded as the parent and nurse of arts and philosophy.

B.C. 275. Ptolemy Philadelphus, king of Egypt, built a gymnasium near the temple of Theseus, and gave his name to a new tribe at Athens.

B.C. 240? Attalus, king of Pergamus, had also the honour of giving name to a tribe, and ornamented the Notium, or S.E. wall of the Acropolis, with four compositions in statuary, one of which commemorated his own victory over the Gauls (Pausan. 1, 25.)

B.C. 167. Antiochus Epiphanes, assisted by the architect Cossutius, commenced the great temple of Jupiter Olympius, which was not finished till the time of Hadrian.

Ariobarzanes II., king of Cappadocia, repaired the Odeum, or Music Hall of Pericles.

Julius Cæsar contributed to the erection of the Propylæum of the New Agora, which still exists.

A.D. 117-138. Hadrian, the imperial architect, was the great benefactor of Athens. He finished the great temple of Jupiter, adorned the city with numerous other public works, and furnished the new quarter of the Hadrianopolis with water by an aqueduct. Antoninus and M. Aurelius continued to extend to Athens the munificence of their predecessor; and at the same time Herodes Atticus, a native of Marathon, erected the theatre which bore the name of his wife Regilla,

and covered with the white marble of Pentelicus the seats in the Stadium of Lycurgus. To this epoch belongs the description of Athens by Pausanias, which applies to a time when the great works of the age of Pericles still showed all their original freshness and perfection, and the colossal structure of the Olympium had just received its completion.

Though Athens was pillaged by Sulla's soldiers, and perhaps with the other cities of Greece may have been robbed of some of its pictures and statues by the Romans on subsequent occasions, there is no reason for supposing that, at the close of the second, or even the third century, Athens had lost much of its unrivalled works of art. The gradual decay of its buildings has been attributed with good reason partly to the decline of paganism (Leake, pref. L.) and to the slow though gradual progress of the new faith.

A.D. 258. The walls of the city were repaired under Valerian.

A.D. 267. The Goths entered Athens, but were repelled by Dexippus an Athenian.

A.D. 398. Alaric took Athens, but probably did not treat it with great severity.

A.D. 420. General abolition of paganism in Greece and Athens in the reign of the younger Theodosius. About this time, or probably earlier, the Parthenon, the temple of the Virgin-Goddess, was converted into a church dedicated to the Virgin-Mother, and the temple of Theseus was appropriated to the warrior Saint George.

A.D. 1204. Athens became a duchy conferred on one of his followers by Boniface, marquis of Montferrat, who assumed the title of king of Thessalonica. It continued in the possession of the Christians, but with many changes, till it fell into the hands of the Turkish sultan, Mohammed II., in 1456.

A.D. 1687. Siege and capture of the Acropolis by the Venetians under Morosini, when the Parthenon and other buildings on the Acropolis sustained great damage. Though Athens has suffered much since that time, the siege of Morosini did infinitely more damage to the Parthenon than it had sustained during the 2000 years of its existence. The explosion of some powder which had been placed in it by the Turks, reduced it from its then almost perfect state to a ruin.

Athens was declared by a royal ordinance of the present year (1834) to be the capital of the new kingdom of Greece. The king visited it in March and laid the foundation-stone of his future residence. During the excavations lately made for the purpose of erecting new buildings, several works of antient art have been dug up, and we may confidently hope that the restoration of tranquillity to this city will be favourable to a more complete illustration of its topography and antiquities. A fine basso-rilievo, said to belong to the frieze of the Parthenon, has been lately discovered; and it is said that the whole area round the Acropolis is to be excavated. Most of the existing buildings have suffered during the war of independence, but fortunately the temple of Theseus has escaped with very little damage. Among the names of the projected new streets, we find those of Minerva, Theseus, and Pericles. (For the constitution, history, and antiquities of Attica, in addition to the articles and works already referred to, see *Lehrbuch der Griechischen Staatsalterthümer*, by K. F. Hermann, 1831; Boeckh's *Public Economy of Athens*, English translation; Clinton's *Fasti Hellenici*, &c.)

ATHENS, a town in the state of Georgia, U. S., on the Oconee, a tributary to the Alatamaha; it is ninety-two miles W.N.W. of Augusta on the Savannah river. It contains Franklin College, otherwise called the University of Georgia, which was founded by an act of the Legislature in 1788-9, and established at Athens in 1802. Its original endowment was 30,000 acres of unappropriated land, which not producing any sufficient income, when leased according to the provisions of the original law, was sold in 1816, by the trustees, who obtained permission to that effect. The proceeds of the sales were 100,000 dollars, which are vested in the State bank; the Legislature guaranteed to the university 8 per cent. on this sum, and in 1830 made an additional annual grant of 6000 dollars. The income from tuition varies from 3000 to 4000 dollars.

The university buildings consist of two brick edifices of three stories, for the accommodation of students, containing rooms for the classes, a chapel, philosophical hall, library, &c. The college library contains 3200 volumes, and the students' libraries 3000. The institution possesses a philosophical and chemical apparatus, a cabinet of minerals of 3000 specimens, and a botanical garden. The board of trustees consists of twenty-eight laymen; the board of visitors of ten laymen and five clergymen. Since the opening of the institution in 1802 to the present time, there have been six different presidents, all of whom, as is usually the case in the U. S., have been clergymen, with the exception of the first. The faculty in 1833 consisted of nine professors and teachers, including the president; the number of students in 1833 was ninety-seven. The vacations are about ten weeks in the year. The expense of tuition, library, and servants' hire, is thirty-eight dollars, or somewhat above 8*l.* per annum.

Athens is in a fine healthy situation, in the upper country of Georgia, at the distance of above 200 miles from the sea. It contained, in 1827, nearly 1000 inhabitants. (*American Almanac for* 1834, *&c.*)

ATHENS, a small post-town in the S.E. part of the state of Ohio, U. S., situated on a high peninsula, formed by a bend of the Hockhocking river, a tributary to the Ohio. It is the seat of the University of Ohio, which was founded in 1802, by the Territorial Legislature, and endowed by Congress with two townships, which is seventy-two square miles, or 46,080 acres; this act was confirmed in 1804, by the State Legislature, after Ohio had been raised to the rank of a sovereign state. The institution consists of a college, organized about 1821, which is a brick building of four stories, and an academy. The college has a philosophical apparatus, and a library of 1000 volumes; there are two students libraries of about 500 volumes each. The rents of the college lands at present amount to about 3500 dollars per annum.

The faculty in 1833 consisted of five professors and teachers, including the president, who is a clergyman. The number of students in 1833, in the college classes, was forty-five; in the academy, twenty-nine. The whole annual expense for the session of forty-two weeks is only ninety-eight dollars, or about 21*l.* sterling. (*American Almanac for* 1834, *&c.*)

ATHENS, NEW, a small place in Ohio, eighteen miles N.W. of Wheeling, on the Ohio river. It is the seat of Franklin College, which was incorporated in 1824. This college has no endowments, but is supported altogether by the pupils' fees. It contains four professors, including the president and vice-president. Number of students in 1833 was forty. (*American Almanac for* 1834.)

ATHERSTON, or ATHERSTONE, a town in Atherstone division, in the hundred of Hemlingford, in Warwickshire, close upon the border of Leicestershire, and on the road from London to Lichfield, 105½ miles from London, and 16 from Lichfield.

This place, which owes its origin to the Saxons, stands on the great Roman Way, *Watling Street*. The manor was given by William the Conqueror to his nephew Hugh Lupus, earl of Chester, and is called in Doomsday Book *Aderestone*. By Hugh Lupus the manor was bestowed on the monks of Bec in Normandy, who obtained by charter from Henry III. in 1246 and 1247 a yearly fair, to last three days, beginning on the eve of the nativity of the blessed Virgin, and a market weekly on Tuesday. The market increased very much, from its convenient situation. Upon the seizure of the lands of foreign religious houses in the reign of Henry IV., this manor was taken by the crown; and after having been successively granted to many individuals or religious houses, it passed to the family of the Repingtons, in which it long remained. King's College, Cambridge, to which it was granted by Henry VI., still receives 16*l.* yearly from it.

Atherstone consists chiefly of one street, in which antient and modern houses are mingled together. It is paved and lighted. The market-place is on the north side of the street, and the market-house, with a spacious room in the upper part of it, was erected not many years since. It is a chapelry in the parish of Mancetor, or Mancester, of the yearly value of 11*l.* 5*s.*: patron, the vicar of Manceter. The chapel is antient, having been the nave of the church belonging to an Augustinian friary, founded by Lord Basset of Drayton in the reigns of Edward III. and Richard II. Some time after the dissolution of the monasteries, the nave was granted to the inhabitants for a chapel of ease to the church at Manceter. A south aisle, of brick, added to this edifice, and 'a humble imitation of a modern Gothic tower' erected in the place of the former tower, have entirely deformed this antient building. The former chancel has been appropriated to the free school endowed by Sir William Devereux and two other persons in 1573.

The chief manufacture of Atherstone is that of hats,

Ribands and shalloons are also made. There are four fairs in the year, at which considerable business is done: at one of these, held in September, much cheese is sold. The Coventry Canal, which passes close by the town on the west, contributes to its trade. At a short distance on the east flows the river Anker, a tributary of the Tame, which itself flows into the Trent. The population of Atherstone was, in 1831, 3870.

Atherstone has a subscription-library and news-room; and there are two dissenting meeting-houses, one for methodists and one for independents: one infant school (if not two), an endowed charity-school, and a dispensary.

It was at Atherstone that the earl of Richmond, afterwards Henry VII., and his army halted on the night of the 20th August, 1485, two nights before the decisive battle of Bosworth Field. The troops encamped in a meadow to the north of the church, since called the Royal Meadow; and during the night, Henry held a conference in Atherstone with the two Stanleys, in which the measures were agreed upon which resulted in the defeat and death of Richard III.

Mr. Dugdale's park, adjacent to Atherstone, contains some of the tallest and finest oaks in England. A remarkable bed of trap runs through this park: and there are many other formations in the neighbourhood of Atherstone highly interesting. Among the anomalous rocks by which the coal-field is bounded on the south-east, is a peculiar quartzose sandstone, of extraordinary hardness, which is extensively quarried, and sent to a great distance for the purpose of road-making. Nearly adjacent to this is a rich bed of manganese, which at Hartshill has yielded a very profitable return.

Manceter includes also the hamlets of Hartshill and Oldbury. Manceter itself, though now a poor village, is worthy of notice, on account of its having been a Roman station, *Manduessedum*. On the Roman way, Watling-street, and near the present village, are the remains of works of considerable extent. The dimensions of the area included within the works are 627 feet by 438 feet mean breadth; the contents are six acres, one rood, four perches. The station Manduessedum was near these works, or rather these are the remains of the station itself. Fragments of buildings, and Roman coins, have often been found in the neighbourhood; and at Oldbury are the remains of what is supposed to have been a Roman summer-camp. Three sides of this are yet well preserved; the ramparts are about twenty feet broad at the bottom, and six feet high. On the north side of this fort some stone axes, or heads of weapons, were dug up; one of which is now in the Ashmolean museum at Oxford. Manceter is a vicarage in the diocese of Lichfield and Coventry.

Michael Drayton the poet, and Dr. Obadiah Grew, a puritan divine of the 17th century, were natives of this parish; the first was born at Hartshill, in 1563, and the second at Atherston, in 1607. (Bartlett's *History and Antiquities of Manceter. Beauties of England and Wales.*)

ATHERTON, a chapelry in the parish of Leigh, in the Hundred of West Derby, Lancashire. It contains the populous village of Chowbent, and had, in 1831, a population of 4181 persons. Many of the coarser kind of cotton goods are made here. The chapel of the Establishment at Chowbent once belonged to the Dissenters, but was taken from them in consequence of an election dispute, and consecrated by Dr. Wilson, the Bishop of Sodor and Man. It continues, to the present day, out of the episcopal jurisdiction of Chester, to which see the county generally is ecclesiastically subject. There is also a Unitarian meeting-house, with a considerable congregation.

Atherton Hall, close to Chowbent, was formerly the seat of the Atherton family. It is a noble mansion, with extensive pleasure-grounds, extending to the town of Leigh, from which it is distant nearly a mile.

A branch of the Duke of Bridgewater's canal passes near this place.

ATHIAS; ר׳ יוסף עטיאס. Rabbi Joseph Athias was a famous printer at Amsterdam, who died of the plague, A.D. 1700. Assisted by the most distinguished scholars of Amsterdam, he compared the old editions and manuscripts of the Hebrew Bible, and published A.D. 1661 a new edition, for which John Leusden wrote the summaries and a preface. The second edition of this Bible, published A.D. 1667, in two volumes octavo, received considerable corrections. The editions of the Bible published by Athias were more correct than any former editions: they nevertheless contain many inaccuracies, especially in the vowel points, and still more in the accents. David Clodius asserts, in the preface to his own edition, that he observed six hundred errors; and Jablonski states, in his preface to his own edition of the Bible, that he corrected two thousand inaccuracies in the Bible of Athias. The edition of Athias was bitterly attacked by Samuel Maresius, in a letter published 1669. A reply to this letter was published under the following title: '*Cæcitas de Coloribus, hoc est, Josephi Athiæ justa Defensio contra ineptam, absurdam, et indoctam Reprehensionem Viri celeb. D. Sam. Maresii*, &c. It has been supposed that Leusden, writing in the name of Athias, was the author of this reply. It has been remarked, that some copies of the second edition of the Bible of Athias differ from the rest. The cause of this difference was, that Athias had struck off five sheets of an edition of four thousand five hundred copies when he resolved to print five hundred copies more. The proofs of these supplemental sheets were not revised by Leusden, and consequently some copies contained slight variations in the first five sheets. Notwithstanding its defects, the Hebrew Bible of Athias had great merit, and has been the basis of all subsequent editions. The editions of Clodius, Jablonski, Van der Hooght, Opitz, Michaëlis, Hahn, Houbigant, Simonis, Reineccius, Hurwitz, and others, may be considered as improvements upon that of Athias. The Bible of Athias was the first in which verses were marked with Arabic cyphers, all former editions having only the Jewish method of notation.

Athias printed the Bible also in Spanish, Jewish German (or that jargon mixed with Hebrew which is spoken by the Russian and Polish and some German Jews), and English. Of the English Bible he kept the types standing, and asserted that he printed and sold more than a million of copies; but this is scarcely credible, because the English Bible of Athias is rather scarce. The States General of Holland presented a gold chain and medal to Athias. (See Woolfii, *Bibliotheca Hebraica*, tom. i. p. 552—554; Le Long, *Biblioth. Sac.*, part i. p. 116, &c.; *Einleitung in das Alte Testament*, von Eichhorn. The prefaces to later editions of the Hebrew Bible usually contain some notices on Athias.)

ATHLONE, a borough in Ireland, of considerable importance from its situation on the river Shannon, and on the principal road which connects the metropolis with the western province of Connaught. It is about 75 or 76 miles from Dublin, nearly due west. The name Athlone is supposed to be a somewhat altered form of the Celtic Ath Luain—Moon-Ford, or Ford of the Moon, the town being situated at a ford over the Shannon.

Athlone is in three parishes: St. Peter and Kiltoom, in the barony of Athlone, in the county of Roscommon and province of Connaught; and St. Mary, in the barony of Brawney, in the county of Westmeath and province of Leinster. These parishes are separated from each other by the river Shannon, St. Peter and Kiltoom being west of that river, and St. Mary east of it. The two parts of the town are united by a bridge of nine arches, built at the ford already noticed. This bridge is only twelve feet wide, and, in consequence of this narrowness of the passage, is a scene of great confusion in times when the occurrence of a fair or a market causes any increase in the ordinary traffic. Nearly in the centre of this bridge is a stone monument, erected in the reign of Queen Elizabeth, whose arms occupy one of the compartments.

There are besides this four other bridges in the parish of St. Peter, three of which are over a canal, cut at the back of the town with the view of preserving the line of navigation of the Shannon, which had been interrupted by the ford and the bridge over that river.

The town is chiefly composed of strong stone houses, and has been long fortified. The walls and fortifications, which had been suffered to go to decay, have been strengthened anew within the last few years, and the works are mounted with many guns of various calibre. The citadel or castle, which has been repaired in a more modern style of fortification, commands the bridge and the river. The town is very irregularly built, neither the straightness of the streets, the proportional height of the houses, nor the uniformity of fronts, having been attended to.

Athlone has no public buildings of any importance except the Sessions-house, where the quarter-sessions are held; and the new barracks, so close to the town as to be considered part of it. Here is accommodation for 2000 men;

and attached to it are magazines, armoury, ordnance yard, depôt of military stores, and hospital. Before the magazines in the present barracks were built, the barracks and magazine of the garrison were in the castle; but the magazine was blown up in 1697, having taken fire by lightning. Athlone is one of the chief military stations and depôts for arms in Ireland.

Besides the places of worship of the Establishment, there is a large Romish chapel in St. Peter's parish, and a preaching-house in St. Mary's parish, supported by the Irish Baptist Society; in which last a free school also is taught. There is in the town a charter-school; also free schools in the barracks and in the Franciscan convent.

The manufacture of felt hats has long been carried on here, and the town has some celebrity for its felts. Friezes are manufactured, and some linens are woven. There are two breweries; one of them very extensive. Athlone is well situated for trade, having the advantage of the Shannon, which is navigable thirty-eight miles farther up; and also of the Grand Canal, which communicates with Dublin, and joins the Shannon seventeen miles below Athlone. There are three market days in the week, and the markets are well supplied with sea and river fish, vegetables, and meat. There are four fairs; two held in virtue of the charter of the corporation. These two appear to be held in the parish of St Peter, the others in that of St. Mary.

The town has a corporation created by James I., consisting of a sovereign, two bailiffs, twelve burgesses, and an unlimited number of freemen. The corporation can by their charter hold a court every three weeks for the recovery of small debts not exceeding five pounds; and the sovereign can decide summarily for any debt not exceeding five shillings. The corporation is also authorized to hold a court of pie-poudre for administering justice in case of injuries done during the fairs. The borough sent two members to the Irish parliament; but since the Union it has returned only one.

Athlone was rendered conspicuous in the Irish war which ensued upon the revolution of 1688. After the battle of the Boyne in 1690, it was held for King James by Colonel Richard Grace, formerly chamberlain to that prince when Duke of York. While King William invested Limerick in person, he detached General Douglas to besiege Athlone. The eastern part of the town, called the English Town, was evacuated and burnt by Colonel Grace, who broke down some arches of the bridge and strengthened the western part (or Irish Town) of Athlone with new works. Douglas summoned him to surrender; but Grace, firing a pistol at the messenger, said, 'These are my terms, and these only will I give or receive; and after my provisions are consumed, I will defend the town till I eat my old boots.' After battering the walls, the besieging army broke up and retired.

The year following (1691), Athlone was again attacked by General Ginkell; who, after taking possession of the English Town, determined to force the passage of the river by fording, and to storm the Irish Town. The garrison had been weakened by St. Ruth (King James's commander-in chief) forcing Colonel Grace to exchange the three tried regiments of foot, with which he had the year before defended the town, for three inferior ones in St. Ruth's army, and the attempt of Ginkell was successful with very trifling loss on the part of the assailants. The town was taken, the governor fell in the assault, and the army under St. Ruth, which was encamped in the neighbourhood, retreated to Aghrim, where it was in a few days entirely defeated by Ginkell, who received for his services in this war the title of Earl of Athlone. The title still remains in the family.

The population of the borough of Athlone was, in 1831, 11,406; but the whole population of the three parishes of St. Peter, Kiltoom, and St. Mary was 19,661. Nearly all speak English and Irish; but the vernacular language seems to be on the decline. The inhabitants maintain many antient customs. The parish of St. Mary is a rectory and vicarage in the diocese of Meath; that of Kiltoom a vicarage ecclesiastically united with the vicarage of Camma, both in the diocese of Elphin; that of St. Peter is a perpetual curacy, also in the diocese of Elphin.

The river Shannon supplies a variety of fish. Pike, trout, bream, a few salmon in the season, perch, and eels, are taken; the two latter in great abundance. Eels are sent in considerable quantity to Dublin.

ATHLONE, EARL OF. [See GINKELL.]

ATHOL (*i. e.* pleasant land), a district in the northern part of Perthshire, in Scotland, formerly one of the hereditary jurisdictions into which many parts of Scotland were divided. It is bounded on the N. by Badenoch in Inverness-shire; on the N.W. and W. by Lochaber, also in that county; on the S. by Breadalbane and Strathmore in Perthshire; on the E. by Forfarshire; and on the N.E. by Mar in Aberdeenshire. Its precise limits are not known, and its dimensions are variously given. In the Appendix to Sir John Sinclair's *General Report, &c., of Scotland*, it is estimated at 450 square miles. The face of the country is very mountainous, and contains a part of the great Grampian chain; some of the mountains are of considerable height—Cairn Gowr, 3690 feet, and Scarsoch, between Athol and Badenoch, 3390. The mountains are intersected by narrow glens, watered by rapid rivulets. These, by their junction, form the rivers Edendon, Bruar, and Tilt, which fall, in the order in which their names occur, into the river Garry. This, in turn, becomes a tributary of the Tumel, which flows along the south part of the district into the Tay. The whole district of Athol is included in the basin of the last-named river (the principal in Scotland), for the Airdle water, which carries off the streams of the eastern parts, falls into the Ericht, this into the Isla, and this again into the Tay. The chief lochs are Loch Rannoch, about nine miles long and a mile broad, surrounded by finely-wooded scenery; Loch Ericht, on the boundary between Perth and Inverness-shires, about fourteen miles long, and, on an average, three-fourths of a mile broad, in the heart of a mountainous, bleak, and almost uninhabited country. In a thicket on its banks, the young Chevalier concealed himself after the battle of Culloden. Loch Lydoch, which is on the borders of Argyleshire and Perthshire, can scarcely be considered as belonging to Athol: it is about twelve miles long and of varying breadth. Loch Tumel and Loch Garry are about the same length, viz., three or four miles; but the former has about a mile breadth, while the latter has only half that dimension. Streams connect Loch Lydoch and Loch Ericht with Loch Rannoch, and the river Tumel flows from the latter, through Loch Tumel, to the Tay. Loch Garry is near the source of the river of the same name.

The hills were formerly clothed with timber of various kinds, but the quantity of this is much reduced, and wood is now found only in the most sheltered places. It was formerly one of the best hunting districts in Scotland; but with the diminution of the native forests, the herds of deer have diminished also. The hills are now, in a great degree, devoted to the pasturage of sheep and highland cattle. However, a good number of red deer still remain, especially in the neighbourhood of the duke of Athol's domains about Blair Athol, where the Forest of Athol, containing about 100,000 English acres, is set apart for them, and kept free from all intrusion of men or cattle, except when any parties are permitted to engage in deer-stalking. Fallow deer, in a state approaching to that of nature, are found on the south side of the range of bleak and commonly naked hills which separate Badenoch from Athol. They are rarely seen on the summits, but generally in the glens of Tilt and Bruar.

In the glens by the side of the streams, strips of arable land are cultivated, and made to produce good crops of bear or big, oats, and potatoes.

This district gives the title of Duke to a branch of the family of Murray; a name, however, little diffused in the district, where those of Stewart, Robertson, and Ferguson, are much more prevalent.

In Athol is the Pass of Killycrankie, celebrated for its picturesque beauties and for the victory and death of Grahame of Claverhouse, Viscount Dundee, who fell in maintaining the cause of the house of Stuart, on the 17th July, 1689.

Glen Tilt, along which a principal branch of the river Tay pursues it course for about ten miles above Blair Athol, is to the geologist, classic ground; the observations which Dr. Hutton first made on the granitic veins exposed in that valley form no unimportant part of the Plutonic theory. A detailed account of the geological appearances which present themselves in this interesting spot has been drawn up by Dr. M'Culloch, and is published in the third volume of the *Transactions of the Geological Society*. Lord Webb Seymour's description, which is no less elaborate, was drawn up nearly at the same time and may be seen in the *Transactions of the Royal Society of Edinburgh*.

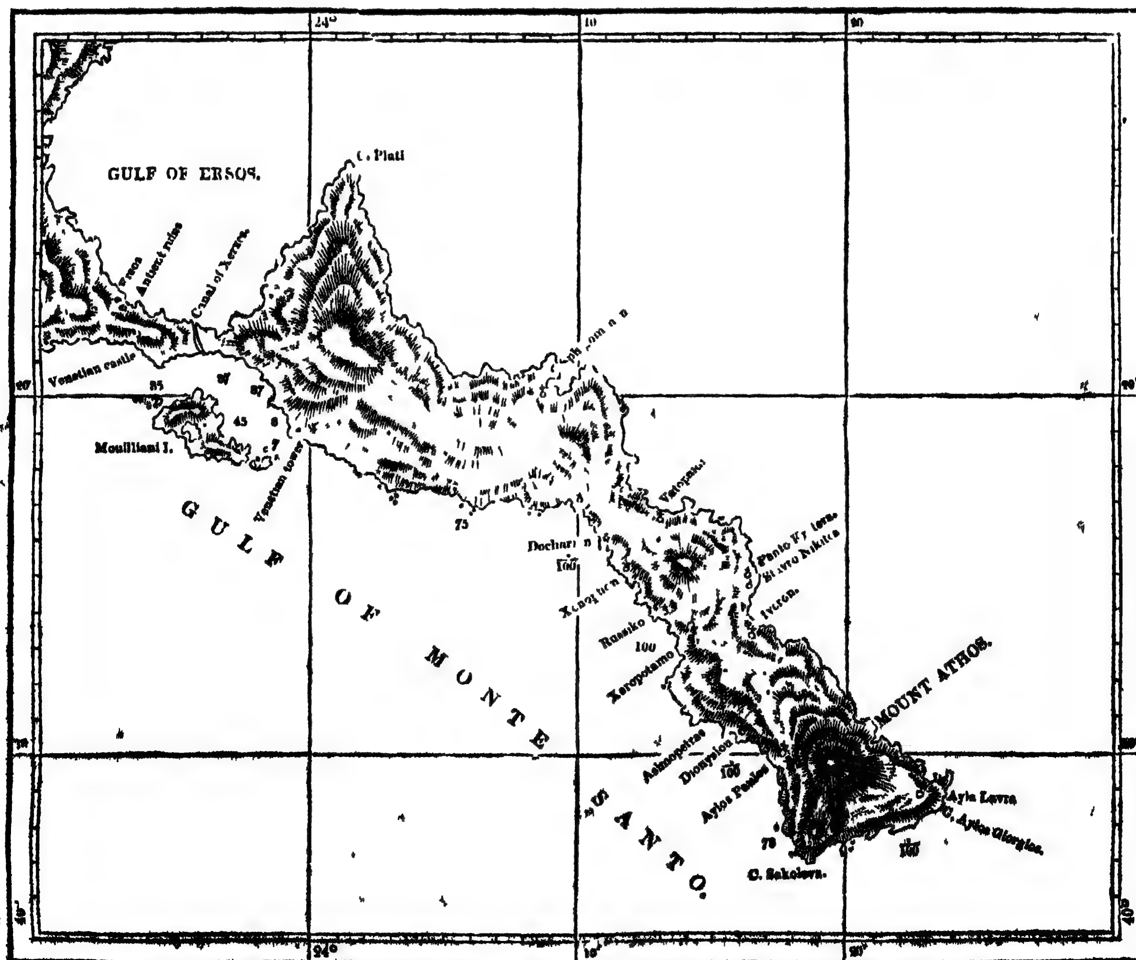
ATHOS, a mountain at the extremity of the long peninsula which projects from Chalcidice, and separates the Gulfs of Contessa and Monte Santo, on the coast of Macedonia. The name Athos was properly applied to the whole mountainous peninsula, which is joined to the mainland by the low flat isthmus near the site of Acanthus, (Herod. vii. 22.) It is now known to the Franks by the name of Monte Santo, and to the Greeks as Ayion-oros, both implying 'holy mountain.' This appellation it has obtained from the number of monasteries, convents, chapels, and other sacred spots scattered round its sides. Some of the monasteries, of which there are twenty-six, are enclosed by high turreted walls, having rather the appearance of fortified towns than the abode of men devoted to the peaceful exercise of religion, and are provided with the means of defence and offence in several pieces of ordnance with which they are armed. Amongst the largest are, Xenophon, Iveron, Vatopaidi, Panto-kratora, Ayia Laura, St. Anne, and St. Paul. The number of monks alone in these establishments is supposed to exceed 8000, exclusive of lay brethren, artificers, and labourers. Ayia Laura contains upwards of 600 monks, and is subject to a very singular regulation, which some travellers have erroneously stated to be general throughout the peninsula: we refer to the prohibition of any female, even of the animal kind, being admitted within its walls. Herodotus (vii. 22) enumerates five towns within the peninsula of Athos.

The antiquity of these foundations is traced to the reign of Constantine; and authentic documents are still extant proving their existence in the time of Nicephorus Phocas, A.D. 961. The oath required from the monks is solemn and simple: to renounce for ever the world and its cares, considering themselves dead to all sublunary concerns, and to devote themselves to meditation, celibacy, retirement, and poverty. Though individually poor, there can be little doubt that the fraternities are by no means so; but it is their interest to conceal their riches, in order to avert the grasping avarice of the Porte. The principal stream of wealth flows from the spiritual source of religion, and consists in the oblations of pilgrims, who, in their peregrination to the chapel that crowns the sharp summit of the mountain, are expected to visit and contribute to each monastery on the tortuous road; yet the monks have not forgotten the temporal source of wealth from commerce, which is carried on chiefly with Salonica and Smyrna. This trade consists almost exclusively of fruits, of which the various species of nuts form the chief portion. The gardens of the monasteries, which are very extensive, produce both fruits and vegetables of all kinds, and are kept in the highest order, as well as the farms, called *metochi*, attached to the several monasteries: these are scattered over all the most fertile spots of the peninsula.

The Russians, Bulgarians, and Servians have each their respective monasteries; and caravans of from two to five hundred pilgrims arrive periodically from those countries, consuming every thing in the villages on their road. A visit to this sacred spot is of the same importance to the members of the Greek church as a pilgrimage to Mecca with Mohammedans. The chapel on the summit is, however, only reached by the more zealous; the road is extremely difficult, requiring the use of both hands and feet to accomplish the ascent. None of the monks reside permanently in this chapel.

On the sides of the mountain are vast forests of pines, oaks, and chestnuts; the pines grow to an immense size. The appearance of the mountain is very magnificent, standing in lonely majesty at the termination of ridges of considerable elevation, and rising abruptly from the sea to a height of 6349 feet. The shores at its base are so steep that there is no anchorage for vessels, the small craft that trade here being obliged to keep constantly under sail while taking in their cargoes: within a quarter of a mile of the coast there are from 80 to 100 fathoms water. The dangers of the shores of Athos were experienced by the Persian fleet under Mardonius (Herod. vi. 44), which was completely destroyed by a storm on this coast.

Although the monks themselves are shamefully ignorant, yet their monasteries possess libraries among which there



are said to be rare and valuable manuscripts, which are rapidly becoming a prey to worms and the damp, being left in a most neglected state.

The Peak of Athos is in 40° 9½′ N. lat., 24° 20′ E. long. The canal of Xerxes is still most distinctly to be traced all the way across the isthmus from the Gulf of Monte Santo to the Bay of Erso in the Gulf of Contessa, with the exception of about 200 yards in the middle where the ground bears no appearance of having ever been touched. But as there is no doubt of the whole canal having been excavated by Xerxes (see Herod. vii. 37, 122, and Thucyd. iv. 109), it is probable that the central part was afterwards filled up in order to allow a more ready passage into and out of the peninsula. In many places the canal is still deep, swampy at the bottom, and filled with rushes and other aquatic plants: the rain and small springs draining down into it from the adjacent heights afford at the Monte Santo end a good watering-place for shipping; the water (except in very dry weather) runs out in a good stream. The distance across is 2500 yards, which agrees very well with the breadth of twelve stadia assigned by Herodotus. The width of the canal appears to have been about 18 or 20 feet; the level of the earth nowhere exceeds 15 feet above the sea; the soil is a light clay. It is on the whole a very remarkable isthmus, for the land on each side (but more especially to the westward) rises abruptly to an elevation of 800 to 1000 feet. From this canal to the extremity of the peninsula it is all holy ground, and parcelled out into 'metochis.'

About 1½ mile to the westward of the north end of the canal is the modern village of Erso (Ἐρσώ), which gives name to the bay, situated on an eminence overhanging the beach: this is crowned by a remarkable mound forming a small natural citadel. On the side facing the sea is still visible part of an ancient Hellenic wall, about 150 yards in length, and from 20 to 25 feet in height; but there are no other vestiges of antiquity except the large square blocks of stone lying about the village, and forming foundations for their miserable hovels. These ruins can be no other than the antient Acanthus. The great mound would appear to be that mentioned in Herodotus (vii. 117), where he says that the Persian Artachaios, the superintendent of the canal, died while Xerxes was at Acanthus, and 'the whole army raised a mound for him.' Herodotus also informs us (vii. 125) that the army of Xerxes, on its march from Acanthus to Therme, was annoyed by lions, who seized the camels which carried provisions. The lion killing a bull appears on the reverse of the coin of Acanthus, here given.



[Silver. British Museum.]

ATHY, a town in the county of Kildare in Ireland, about thirty miles S.W. of Dublin. It is on both banks of the river Barrow, which, flowing to the southward, unites with the Suir, below Waterford, and, forming the harbour of that city, flows into the sea. The Grand Canal from Dublin terminates here. The Barrow is navigable from hence to the sea, so as to form, with the canal, an inland water communication between Waterford and Dublin. Large quantities of corn are sold here weekly, and sent to Dublin.

Athy is situated in a pleasant country, better suited to agriculture than pasturage, and is close to an antient ford, which early Irish history mentions as having been the scene of contest in domestic wars. Two monasteries erected on different sides of the river gave origin to the town. That on the west side was founded by Richard de St. Michael, lord of Rheban, in the early part of the thirteenth century, under the invocation of St. John or St. Thomas, for crouched friars: and that on the east side was founded in 1253, for Dominicans, by the families of Boisel and Hogan. There are some few remains of both these edifices. Gerald, earl of Kildare, erected a castle about 1506, at the foot of the bridge over the Barrow at Athy, that it might serve to secure the English pale. This castle was repaired and enlarged by one William White, about 1575 and obtained from him the name of White's Castle. One tower still remains.

Athy was incorporated by charter of James I., and is governed by a recorder, sovereign, town-clerk, and two bailiffs. It sent two members to the Irish parliament, and was under the influence of the duke of Leinster. It is now alternately with Naas the assize-town for the county of Kildare; and the remaining tower of the castle already noticed is used as a prison and is an appendage to the county gaol of Naas. The population, in 1831, was 4494. There is a parish school for about ninety children (boys and girls), supported partly by subscription and partly by the Kildare Place Society; and a catholic free school, in which about 240 children of both sexes are instructed, is supported by subscription.

Athy is in three parishes, Reban or Churchtown, St. Michael, and St. John (the last being a chapelry), which, with others, form an ecclesiastical union in the diocese of Dublin and Glandelagh, and in the ecclesiastical province of Dublin. The church, which is in the parish of St. Michael, was built about 1740, and is in good repair. The population of the whole union in 1831 was 6352.

The county court-house was erected some time after the church, and the barrack about thirty years afterwards. There are six fairs in the year.

Athy was burnt by the Irish in 1308, and in 1315 plundered by the Scots under Robert Bruce.

ATKYNS, SIR ROBERT, a judge of the Court of Common Pleas during the reign of Charles II., and Lord Chief Baron after the revolution, was an eminent and learned lawyer, much distinguished for his attachment to popular rights and for the uprightness and independence of his conduct during a period of judicial profligacy and subserviency. He was descended from an antient and opulent family in Gloucestershire; and it has been remarked as a singular circumstance, that for more than 300 years consecutively, some member of this family always presided in one of the superior courts of law. His father, Sir Edward Atkyns, was a judge of the Court of Common Pleas during the Commonwealth, and shared with Hale, Rolle, Wyndham, and other judges, the merit of the various improvements in the administration of the law which took place at that period. Immediately after the Restoration, Sir Edward Atkyns was named as one of the judges in the special commission for the trial of the regicides, and appointed a Baron of the Exchequer, in which latter office he continued till his death, which took place in 1669, at the age of 82. The exact date of Sir Robert Atkyns's birth has not been ascertained; but there is no doubt that he was born in the course of the year 1621. He received the rudiments of his education at his father's house in Gloucestershire, and was afterwards entered at Baliol College, Oxford. After spending several years at the University, he removed for the completion of his professional studies to Lincoln's Inn, of which society his father had been a member. Of his history and conduct during the Commonwealth, no particulars have been preserved; but as he was made a Knight of the Bath, with many persons of distinction, at the coronation of Charles II., it is probable that with his father he had attached himself to the moderate party in the profession during that troublesome period. He was returned to the first parliament of Charles II. for the borough of East Looe, and continued to hold his seat till he was raised to the Bench; and from the frequent mention of his name on Committees, and in the general business of the House, he appears to have devoted much of his time to parliamentary duties. Long before his appointment to the Bench he had acquired extensive practice and a high reputation at the bar. In 1661 he was chosen recorder of Bristol; and in the early part of the year 1672 he was made a judge of the Court of Common Pleas, having been for some time before Solicitor-General to the Queen. In his judicial station he maintained his general character for learning and independence, though, from his language and conduct on the trials of the Jesuit priests and other persons charged with the Popish Plot in 1679, he appears to have partaken of the delusion which pervaded the country respecting that transaction, and to have played his part in the disgraceful tragedies at that time enacted in Westminster Hall.

In the year 1680, however, the conduct of the court party, who were then preparing the way by the corruption of the judges for the introduction of arbitrary measures, drove him from the bench. Whether he was displaced by the crown, or whether he voluntarily resigned a situation which he could not retain without sacrificing his independ-

ence, is uncertain; but in his evidence before a committee of the House of Commons previously to the impeachment of Sir William Scroggs, he charges the chief justice with having made an ill representation to the King of some expressions he had used in favour of the right of petitioning. (*Commons' Journals*, Dec. 23, 1680.)

A circumstance occurred in the year 1682, which eventually induced Sir Robert Atkyns to resign his office of recorder of Bristol. Much dissension prevailed among the members of the corporation, and a contested election of members for the city to serve in the Oxford parliament, on which occasion Sir Robert Atkyns was an unsuccessful candidate in opposition to the mayor, tended not a little to inflame the violence of party spirit. It happened shortly afterwards that he was present and voted at the election of an alderman, when an individual obnoxious to the mayor was chosen. The meeting at which this election took place, though attended by a majority of the aldermen, was assembled without a legal summons from the mayor and against his wishes; upon which, the mayor and the rest of the corporation preferred an indictment for a riot, at the quarter-sessions, against Sir Robert Atkyns and two other persons who were present at the election. The case having been removed into the King's Bench, was tried at the Bristol summer assizes, in 1682, and the defendants were found guilty; upon which, Sir Robert Atkyns in the ensuing term personally appeared in court and moved in arrest of judgment. His argument on this occasion, which is fully reported in the third volume of *Modern Reports*, p. 4, was temperate, forcible, and effective, and the Court of King's Bench arrested the judgment upon a technical error in the indictment; but Atkyns, by the advice of Chief Justice Pemberton, and his brother Sir Edward Atkyns, then one of the barons of the Exchequer, immediately resigned his recordership; which was, in fact, the only object of the prosecution.

On leaving the bench in the early part of the year 1680, Sir Robert Atkyns withdrew from all public occupation to his seat in Gloucestershire, where he lived for some years in great seclusion, 'keeping no correspondence,' as he himself says, about public affairs, and interfering in no degree with politics. It is clear, however, from his writings, that during his retirement he viewed with deep interest the political transactions of the time; and he cannot be supposed to have been indifferent to the desperate course which the government were pursuing.

In 1683, when the memorable trial of Lord William Russel took place, some friends and relations of that unfortunate gentleman applied to Sir Robert Atkyns for his advice and direction respecting the management of his defence. With this requisition he readily complied, and furnished the accused with a detailed note of such points of law and fact as he might legally and prudently insist upon on his trial. After the revolution he published consecutively two pamphlets, entitled *A Defence of Lord Russel's Innocency*, in which he argues against the sufficiency of the indictment and the evidence, and justifies the reversal of the attainder, with great force of language and solidity of reasoning. His letter of advice respecting Lord Russel's defence, together with a letter containing a criticism on the proceedings of the trial, and likewise his two pamphlets on the same subject, are published amongst his *Parliamentary and Political Tracts*. In the year 1689 he published a tract, entitled *The Power, Jurisdiction, and Privilege of Parliament, and the Antiquity of the House of Commons, asserted*. The occasion of this tract was the prosecution of Sir William Williams by the attorney-general, for having, as speaker of the House of Commons, and by express order of the House, directed Dangerfield's *Narrative* to be printed. The object of Atkyns's argument, which displays much research and great legal and historical learning, was to show that this was entirely a question of parliamentary jurisdiction, of which the Court of King's Bench ought not to take cognizance. It is said by Mr. Howell in his account of Sir William Williams's case in the thirteenth volume of the *State Trials*, p. 1380, that the case was originally argued for the defendant by Sir Robert Atkyns in 1686, who volunteered his assistance in conducting it, as one which concerned every commoner in England, although he had so entirely retired from the profession that he was obliged to borrow a gown to appear in court. It is probable that this anecdote is founded upon a mistake, Pollexfen and Jones, being mentioned as the defendant's counsel in contemporary reports, and Sir Robert Atkyns not being alluded to as having taken any part in the proceedings. He may, however, have prepared the argument for the occasion, which he afterwards published, although he did not deliver it in court.

Sir Robert Atkyns was returned to the only parliament called by James II., as representative of the county of Gloucester; but he does not appear to have taken at that time any active part in the debates. In the reign of James II. he composed another legal argument, the subject of which was the king's power to dispense with penal statutes, and which was suggested by the well-known case of Sir Edward Hales. In this treatise, he considers at large the doctrine of the king's dispensing power. It is clearly and candidly written, and the truth of the reasoning against the royal prerogative contended for by the judges in Hales's case will hardly be denied at the present day.

The precise part performed by Sir Robert Atkyns in promoting the revolution cannot be ascertained; but his known political opinions, his intimate connexion with the principal actors in that event, and the marks of distinction bestowed upon him by the new government, render it highly probable that he was not a passive spectator of the change. In the month of April, 1689, he was appointed chief baron of the Exchequer, Sir John Holt being at the same time made chief justice of the King's Bench, and Sir Henry Pollexfen chief justice of the Common Pleas. In the latter part of the same year he was chosen speaker of the House of Lords, and continued to hold that office until the great seal was given to Lord Somers in 1693. During the long vacation in the following year, Sir Robert Atkyns, being then seventy-four years of age, signified his intention of finally retiring from public life: attempts were made by the government to induce him to continue on the bench, in consequence of some difficulty respecting his successor; but he adhered to his determination, and retired to his seat at Saperton Hall, near Cirencester, in Gloucestershire, where he spent the remainder of his life. He died early in the year 1709, at the advanced age of eighty-eight years. In 1734 his published writings were collected into one volume, under the title of *Parliamentary and Political Tracts*. Early in life he married Anne, daughter of Sir Thomas Dacres of Cheshunt, in Hertfordshire, by whom he had a son, Robert, who was knighted upon a visit of Charles II. to Bristol soon after the Restoration, and who was the author of the *History of Gloucestershire*.

ATLANTA (in Zoology), a genus of the *heteropodous mollusca* of Lamarck, which Cuvier places next to *carinaria*. The animal is very small, and the shell very delicate. Lamanon thought that he had discovered, in one of these



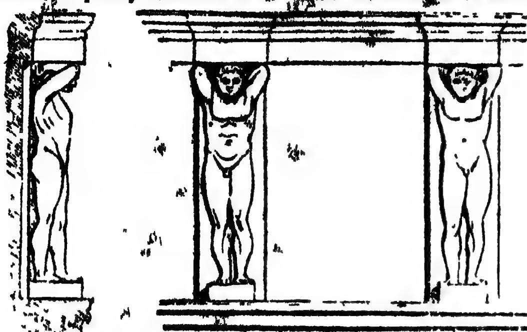
[Atlanta Peronii.] a Natural size.

shells, the original of the fossil ammonites, or *cornua Ammonis*, which, however, must have belonged to the class of *cephalopodous mollusks*, or cuttle-like animals. Atlanta inhabits the Indian seas. [See HETEROPODA.]

Lesueur describes another marine genus, *Atlas*, which must not be confounded with the above. Atlas has no shell; and Cuvier confesses his inability to class it, 'so confused,' says he, 'is the description.' De Blainville thinks that it belongs to the same family as *Gasteroptera*, and places it accordingly under *Akera*, though he confesses that it is not entirely known.

ATLANTES (Ἀτλαντες), so called by the Greeks, probably, from the well-known fable of Atlas supporting the heavens. This is a term applied to figures or half figures of men used in the place of columns or pilasters, to sustain an entablature: they are called also Telamones, a word of doubtful derivation. In the temple of Jupiter Olympius, at Agrigentum, restored by Mr. Cockerell, and described in

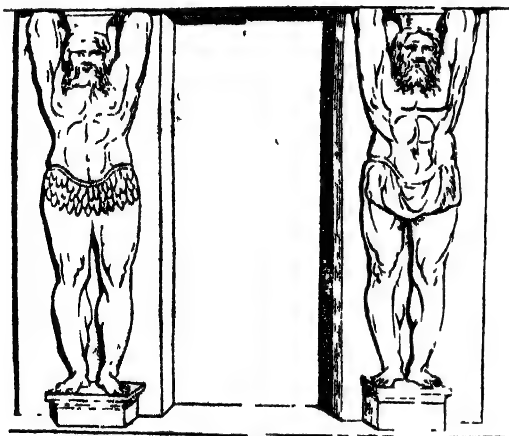
the fourth volume of Stuart's *Athens*, Atlantes are represented standing upon a plinth placed on the entablature above the pilasters of the cella of the temple, and supporting with their heads and arms the entablature on which the beams of the roof were to have been placed. The Atlantes of this temple were twenty-five feet high, built in courses of stone, corresponding with the walls of the cella, and partly attached to it. The annexed cut, showing



[From Temple of Jupiter at Agrigentum.]

the front elevation of the figures, with a profile of one of them, has been engraved with the permission of the publishers of Stuart's *Athens*. (For a more detailed account of these figures, see vol. iv. cap. i. of Stuart's *Athens*, published by Weale, Holborn.)

In the Tepidarium of the baths at Pompeii, Atlantes of baked clay, in high relief, and incrusted with the finest marble stucco, painted to represent life, are ranged at equal distances round the room, to support an entablature from which the arched ceiling springs; in the intervals between the figures, niches are formed for the dress of the bathers. The figures are about two feet high, and stand, like those at Agrigentum, on a plinth. In the annexed cut, from



[From Pompeii.]

the Society's work on Pompeii, a representation of these figures is given.

In the architecture of the modern Italians, the Atlantes are often found supporting the entablature over an entrance to a palace or a garden. At Milan, there is a colossal example of the former; and the rustic gate to the Farnese Gardens at Rome, the design of Vignola, may be adduced as an example of the latter.

ATLANTIC OCEAN is the name given to that part of the ocean which separates the old from the new world: it washes the eastern shores of the Americas, and the western shores of Europe and Africa. Nature not having fixed any boundary between it and those seas which are adjacent to and communicate with it, we shall suppose that it is divided from the Pacific Ocean by a straight line drawn from Cape Horn, the southern extremity of America, to the antarctic pole, and from the Indian Sea by another drawn from the Cape of Good Hope to the same pole. On the north we may say that its boundaries are fixed by nature, in that continuous and impervious barrier of ice which extends between 80° and 82° N. lat. from the coast of Greenland to the island of Nova Zembla. By fixing these boundaries, a part of the Northern Polar or Icy Sea, as well as of the Antarctic Ocean, is included in the Atlantic, but these contiguous parts cannot well be separated in a description of the Atlantic.

Though the Atlantic Ocean extends from pole to pole, its breadth is comparatively not great. The two continents which form its shores approach nearest one another between 69° and 71° N. lat., where the coasts of Greenland are only 800 geographical miles from those of Norway, a distance hardly greater than that between Nantes in France and Cape Wrath in Scotland. Between Cape St. Roque in Brazil, about 5° S. lat., and the coast of Sierra Leone in Africa; between 5° and 8° N. lat., the continents are not above 1500 geographical miles from one another, or about as far as the North Cape from the Nore. These are the two parts where the width of the Atlantic Ocean is least. Its greatest breadth is under 30° N. lat., where the peninsula of Florida and the western coast of Marocco in Africa are separated by upwards of 3600 geographical miles, or 60° of latitude.

Humboldt compares the form of the Atlantic Ocean to that of a longitudinal valley, whose projecting and retiring angles correspond to one another. He supposes it to be formed by a very violent rush of the waters from the south, which being repulsed by the mountains along the coast of Brazil, took a direction towards the coast of Africa, and formed the Gulf of Guinea; here being stopped by the high coast of Upper Guinea, and obliged to run again to the west, the stream gave origin to the Caribbean Sea and the Gulf of Mexico, and issuing thence ran between the mountains of western Europe and those of North America, until it gradually diminished in velocity and force, and at length subsided. In confirmation of this hypothesis, he observes, that the primitive mountains in the Brazilian provinces of Rio, Minas Geraes, Bahia, and Pernambucco are under the same degree of latitude as those of Congo, and that the immense plain along the banks of the Amazon river corresponds to that traversed by the Quorra: further, that the mountains of Parime in America lie opposite to those of Upper Guinea, and that the great plains, which before this catastrophe, according to his hypothesis, extended to the south of the present mouth of the Mississippi, and by the submersion of which the Caribbean Sea and the Gulf of Mexico were formed, are under the same parallel as the great desert of the Sahara.

The South Atlantic Ocean does not offer any other peculiarity in its formation, but the Northern is distinguished by several.

First, we may observe the formation of its islands lying within the polar circle. They are countries of considerable extent, but divided by extremely narrow, long, and winding straits, of very difficult navigation, which is increased by their being only for a few weeks in the year free from ice. For instance, the group of Nova Zembla consists of at least two larger ones; that of Spitzbergen of three larger and many smaller ones; and it is rather more than a supposition, that the extensive country known by the name of Greenland is composed of a number of large islands, divided from one another by narrow, long, and winding straits. This peculiarity in the formation is repeated, though on a less scale, in the islands which skirt the coasts of Norway, where, in some instances, the straits which once divided them from the continent have been filled up by earthy matter, and now resemble exactly Glen More in Scotland. In no other part of the seas has such a disposition of islands been observed, except in those on the S.W. coast of America, and probably those on the N.W., about the latitude of Admiralty Island.

But a still more remarkable and more important feature of the North Atlantic, is its connexion with mediterranean, or *close*, seas of great extent. Such are the Baltic Sea and the Mediterranean Sea in the Old Continent, and Hudson's Bay and the Gulf of Mexico, with the Caribbean Sea, in the New World. These seas doubtless form part of the Atlantic Ocean; but they cannot be considered as bays or gulfs, the connexion between them and the Atlantic being effected by narrow straits, and not by an open sea; and, besides, they extend so far into the continents, that some of them, as the Mediterranean Sea, affords by itself a navigation of 3000 geographical miles. Similar seas indeed exist in the Indian Ocean, where the Gulfs of Persia and of Arabia resemble rather the Mediterranean and the Baltic Seas, than the Gulf of Bengal or that of Guinea; but they are of much less extent. This peculiarity in its form brings

the Atlantic Ocean and its appendages into immediate contact with a much greater extent of country than the other seas that wash both continents. We accordingly find that the continental shores of the Atlantic exceed in extent those of the Pacific Ocean and the Indian Sea, the two other great divisions of the Ocean, taken together, though the latter cover at least three times the surface of the former.

The continental coasts of Europe from the strait of Waigatz to that of Caffa (the entrance of the sea of Azoff), are about 17,000 geographical miles; those of Asia along the Black Sea, the Sea of Marmora, and the Mediterranean Sea, are nearly 3000 miles; and the coasts of Africa, along the Mediterranean Sea, are upwards of 2000 geographical miles. Add to these the western shores of Africa from the strait of Gibraltar to the Cape of Good Hope, which comprehend about 6000 geographical miles, and the whole eastern shores of the Atlantic Ocean amount to 28,000 geographical miles. In computing its western shores, we shall consider Greenland as a part of the continent, though it probably is not strictly true; and on this supposition we find that the eastern shores of America comprehend about 20,000 geographical miles. Consequently the shores of the Atlantic Ocean have a circuit of about 48,000 geographical miles. The coasts of Asia are upwards of 30,000 geographical miles; but nearly 3000 of them belong to the Mediterranean Sea, and consequently to the Atlantic Ocean. The eastern coast of Africa may be computed at 6000 geographical miles, and the western coast of America at upwards of 11,000. Thus the coasts of the Pacific Ocean and those of the Indian Sea taken together do not amount to much more than 44,000 geographical miles, or nearly 4000 miles less than those of the Atlantic Ocean. We shall observe, that in this calculation the northern shores of Asia along the Polar Sea are included, and as they amount to upwards of 2600 geographical miles, the account is still more in favour of the Atlantic Ocean, if this length is subtracted. We shall not enlarge on the advantages which such a peculiar form of the Atlantic must offer for the progress of civilization.

These advantages would extend to a great distance into the interior of both continents, if the number and magnitude of the rivers which flow into the Atlantic were proportionate to the extent of its shores. On the eastern side, the surface, whose drainage falls into the Atlantic, is comparatively limited, and does not comprehend even the whole of Europe: the greatest river of this part of the world, the Volga, carries its waters to the Caspian Sea. No European river of the first or second class flows immediately into the Atlantic Ocean; the largest being probably the Rhine, whose course does not exceed 700 English miles. But three rivers of the second class, the Nile, the Danube, and the Dnieper, enter the Mediterranean Sea or its branches. The boundary line, which marks the region from which the waters run into the Atlantic Ocean on the east, is extremely irregular. On the north it begins with the most northern extremity of the Uralian Mountains, and follows that range to near the sixty-first parallel, where, at the sources of the Kama, it suddenly turns to the south-west and then to the west, in which direction it continues to the sources of the Volga, hardly 150 miles distant from the Gulf of Finland. From this point it runs nearly south to the 55° of lat., from which it extends east-south-east between the tributaries of the Volga on one side, and those of the Dnieper and Don on the other. Having thus attained the 45° of E. long., and nearly the 52° of N. lat., it takes a due southern direction between the rivers Don and Volga, and nearly traversing the middle of the Caucasus, it declines to the south-west, and separates the upper course of the Euphrates from the small rivers which fall into the Black Sea and the Gulf of Scanderoon. It then runs along the coast of Syria at an average distance of less than a hundred miles, and turns round to the Isthmus of Suez. In Africa it encloses the valley of the Nile, the upper part of which is of unknown extent. To the east of this river, the boundary of the Atlantic runs along the shores of the Red Sea, a branch of the Indian Ocean, and at the sources of the Nile it is at least 1600 miles distant from the Mediterranean Sea, and consequently from the Atlantic, the greatest distance which it probably attains in the old world. From near the mouths of the Nile, it runs due west, following generally the thirtieth parallel till it arrives at the shores of the Atlantic, opposite the Canary Islands. To the south of the thirtieth parallel, the boundary of the drainage of the Atlantic Ocean falls in with its shores; the great African desert not being included in it. What parts of Africa south of the Sahara belong to the basin of the Atlantic Ocean, our present geographical knowledge does not enable us to decide with accuracy. Perhaps we shall not much overrate it, in supposing that the drainage of half of its surface flows to the Atlantic. We therefore may suppose that the basin of the Atlantic contains about three millions of square miles in Europe, not half a million in Asia, and about six millions in Africa; which all taken together do not amount to more than nine millions and a half, or about one-fourth of the continent of the ancient world; but the new continent belongs almost entirely to its basin.

In South America, the water-shed between the Pacific and Atlantic Oceans runs at a distance of from 25 to 200 miles from the shores of the former, except in the very southern extremity of the Andes [see ANDES]; and the extensive plains which cover the greatest part of the surface of that continent send their waters to the Atlantic Ocean. Probably not less than six millions of square miles of the surface of South America belong to the basin of the Atlantic, and only half a million to that of the Pacific Ocean. In North America, the line which separates the waters falling into both oceans lies at a much greater distance from the shores of the Pacific Ocean; but even here the great plains to the east of the Stony Mountains send their rivers to the Atlantic: so that, if we assign to the Pacific Ocean even the northern region traversed by the Mackenzie River, the area drained by the rivers falling into the Atlantic may amount to upwards of six millions of square miles, whilst those falling into the Pacific probably do not drain more than two millions. According to this account, the basin of the Atlantic Ocean comprehends about nineteen millions of square miles on both continents; and the remainder, amounting to about twenty-seven or twenty-eight millions, belongs to the basins of the Pacific and Indian Seas, and to those of a few inland lakes, or to a few deserts which have no water.

The Atlantic Ocean being, in the present state of the commercial world, the most frequented high-road of communication, has been examined more completely than the other seas, with respect to its facilities for navigation. The dangers and difficulties produced by numerous and intricate groups of islands are of less frequent occurrence in this sea than in any other: for, if we except the chain of islands which separates the Gulf of Mexico and the Caribbean Sea from the Atlantic, and which therefore are to be considered as forming part of the shores of the ocean, it can hardly be said to contain any group of islands between 50° N. lat. and 50° S. lat. The groups of the Azores, Canaries, and Cape de Verde Islands, as well as those of Guinea and the Bermudas, are small, and present few difficulties to navigators. The Canaries, including Madeira, are much resorted to by vessels, from their situation on the verge of the regions in which the elements essential to navigation (viz., the air and the water) undergo a change: for to the south of that group, the winds, as well as the motion of the sea or the currents, are generally much less changeable than in the latitudes nearer to the poles.

With respect to the *winds*, the whole surface of the Atlantic Ocean may be divided into three regions, in one of which the winds maintain a constant course from east to west, and have obtained the name of trade-winds. This region extends to about 30° of lat. on both sides of the equator. The other two regions, to the north and south of the thirtieth parallel in both hemispheres, are subject to a continual change of the winds, and are therefore called the regions of variable winds.

It is not here our object to enter into an explanation of the natural causes which produce the phenomenon of the *perpetual* or *trade winds* [see TRADE WINDS]; but we shall historically observe the deviations from these general rules, which are found to exist in the Atlantic Sea, and which themselves affect the navigation of it no less than the trade-winds.

In the eastern part of the region of the trade-winds, these winds blow, on the north side of the equator, from north-east; and on the south, from south or south-west, as we shall see hereafter. If they continued in these directions, they would of course meet one another, but this is not the case: both trade-winds are separated from one another by the *region of calms*. This region is not always of the same extent, and does not occupy the same part of the ocean, though it always extends over the whole of it from the coasts

of Africa to those of America. It sometimes occupies not much more than two, and at other seasons up to ten degrees of latitude. It is a remarkable circumstance, that it does not extend equally on both sides of the equator, but is rather situated in the northern hemisphere. It rarely extends to the south of the line, and never farther than two and a half degrees of south latitude, whilst, on the north of the equator, it sometimes advances even to the thirteenth degree of latitude. The position of the sun visibly influences the position of the region of calms, as well as the range within which the trade-winds blow. In the summer months, especially in July, August, and September, the calms advance towards the north, and extend sometimes, as we have already observed, to the thirteenth parallel; at this time the southern trade-wind encroaches considerably on the northern hemisphere, being found as far as the fourth or fifth degree of northern latitude. It may even be said that this last-mentioned trade-wind passes the equator all the year round, except in January, when the region of calms extends to two and a half degrees of south latitude. The central line of this region may therefore be placed at about five or five and a half degrees of north latitude, and its mean breadth may extend over five or five and a half degrees of latitude, or from 300 to 330 geographical miles. The calms which reign in this region would oppose an insuperable obstacle to the progress of vessels, if the water was not daily agitated by a squall. At noon, a black and well-defined cloud appears towards the east, which seems to announce a violent thunder-storm; suddenly a wind rises, blows with great violence for a few minutes, sends down a few drops of rain, and immediately the calm returns. It is only by means of these daily squalls that the region of calms can be passed by vessels, but it always proves a very disagreeable navigation.

The trade-winds themselves are subject to change in their extent, according to the seasons, and in their direction, according to the different degrees of longitude. They withdraw farther from the equator when the sun is in the hemisphere in which they blow, and they occupy a wider range towards the coasts of America, than at a short distance from the old world. In the seas bordering on the latter they are rarely encountered at thirty degrees of latitude, and often not before reaching the twenty-seventh parallel, so that the mean boundary may be placed at twenty-eight and a half degrees. Towards America, however, they extend somewhat more towards the north, even to thirty-two degrees of latitude, so that the mean boundary may be fixed at the thirtieth parallel. The direction of the trade-winds changes with their progress from east to west. Near the old continent, and north of the equator, the direction is from north-east, or nearly so, but farther off it declines more to the east, so that in the middle of the ocean it is east a quarter north, and on the coasts of America it blows from due east. No navigation is more pleasant than that with the trade-winds. They are rather a breeze than a wind, and their blowing is uniform, constant, and not interrupted by squalls. The waves raised by them are low, and their swell is gentle. All these circumstances induced Humboldt to think that it is less dangerous to pass from the Canaries to America, than to traverse one of the small lakes of Switzerland; and he compares this navigation with the gentle descent on a slow-flowing river, or rather a canal. The Spaniards have called this part of the Atlantic Ocean *il golfo de las damas* supposing that even ladies could muster courage enough to navigate it; for here the passage to America may safely be effected in an open boat.

To these general observations we shall add a few others, with respect to the difference between the northern and the southern trade-wind. The northern trade-wind declines only from north-east to east in its progress westward, but it is less constant towards its northern boundary than the southern towards the antarctic pole. Between the twentieth and thirtieth degrees of north latitude, sometimes violent north-western winds prevail. For that reason, vessels bound for the West Indies or South America sail along the old continent till they attain the twenty-first parallel, when they turn to the west.

The southern trade-wind is more regular, and always preserves its direction, and it is also less boisterous towards its southern boundary. It extends, as we have already observed, so far north, that it is sometimes found in force as far as the fifth or even sixth degree of north latitude. Along the coasts of Southern Africa, it blows from the south-west; but at a distance from the coast it becomes by degrees more southerly, and as it proceeds farther to the west its direction becomes nearly due east. The meridian of twenty degrees west of Greenwich may be considered as a line of separation between the winds which blow from the south and those from the east. To the east of that line, the direction of the winds varies between S.W. and S.S.E., and to the west of that line between S.S.E. and E.S E.

The trade-winds do not begin to blow on the coast of the continents, but only at a considerable distance from them. This is to be attributed to the different degree of temperature of the land and of the sea, which, when the land is extensive, must be considerable, and produce a great change in the wind. Thus, between the northern trade-wind and the African coast, from the Canaries to the Cape de Verde Islands, or, more exactly, between Cape Bojador and the mouth of the Senegal, the wind blows constantly from the west. This phenomenon is to be accounted for by the nature of the great desert called the Sahara, whose surface, composed of loose sand, is heated by the sun to an excessive degree, and, rarefying the superincumbent air, causes it to rise. When this rarefied volume of air comes in contact with the more dense strata of air covering the sea, the latter expands over the deserts, and in this manner the west wind along this coast is produced.

But this influence of the Sahara does not extend beyond the Cape Verde Islands. Further to the south, as far as Cape Mesurado, or more properly between 15° N. lat. and the equator, that is, to the east of the region of calms, a kind of monsoon prevails, blowing in certain places to the distance of seventy leagues off shore (fifty leagues off Sierra Leone), and proceeding from the north-east or north from September to June, but in the remainder of the year from south-west. It is remarkable that along this coast the currents are likewise periodical, and change together with the winds; but they always run in an opposite direction to them. In the Gulf of Guinea or Benin, and along the coast of Southern Africa to 30° S. lat., the wind does not materially differ from the southern trade-wind, blowing constantly from the south-west, or nearly so.

The changes which are produced in the direction of the southern trade-wind by the continent of South America are considerable. Along the coast of Brazil a regular monsoon is formed, which between September and March proceeds from between N. ¾ E. to N E. ½ E.; and from March to September from between E. ¼ N. to E.S.E. This monsoon blows commonly with considerable force, and extends to a great distance from the shore, especially in the months of June and July, when it is at its height, at which time it sometimes advances nearly as far as the middle of the Atlantic Ocean. To the north of the equator the trade-wind does not undergo any change along the coast of America. This is probably to be attributed to the lowness of the coast of Guiana, and that of the extensive and frequently inundated plains along the lower course of the Orinoco. It is even observed that in this quarter the trade-winds extend so far over the land, that their effect is felt at Angostura, 240 miles from the mouth of that river. [See ANGOSTURA.]

These are the winds which blow on both sides of the equator to the thirtieth degree of lat. in the region of the perpetual winds. To the north and south of this region the winds are variable; but it is observed that westerly winds prevail in both hemispheres; and, according to the computation of Major Rennell, the proportion between those that blow from the west to those from the east, is as 9 to 5¼ in the northern hemisphere. Besides being variable in direction, they vary likewise extremely in the degree of force with which they blow.

The *currents* of the Atlantic are less important than the winds; but still they contribute considerably to accelerate or retard navigation, and on that account deserve the greatest attention. But, as hardly sixty years have passed since they began to attract the attention of the navigator as well as the geographer, and as the subject is involved, from its nature, in many difficulties, the information respecting them is not such as could be wished; still much has been collected, which is both interesting and useful.

It would seem that there is hardly any considerable portion of the ocean which always remains still. The tides do not occasion an absolute removal of the water from one place to another, except near the coast; and even there this motion is limited to a comparatively small distance. But

besides the tides, two kinds of motion are to be distinguished in the sea, which we shall name with Major Rennell the *drift-currents* and the *stream-currents*.

The *drift-currents* owe their origin to the effects produced on the surface of the sea by the perpetual or prevailing winds; the former, even where they do not blow with great force, by their uninterrupted continuance displace and push forward the upper strata of the water, and thus produce a motion towards the region to which they blow. These drift-currents are constant, and run always in the same direction and commonly with pretty equal velocity. The drift-currents produced by the prevalent winds are not so constant and do not always run in the same direction nor with the same velocity. In the Atlantic Ocean, the former kind of drift-current is found only between the tropics, where it is produced by the trade-wind; and the latter to the north and south of 30°, where they are ascribed to the effects of the prevalent winds.

The drift-current is, in some measure, observable all over that portion of the Atlantic Ocean which is under the influence of the trade-winds; but as these winds are not very constant to the north of the 23d parallel, and rarely extend to the south of the 9th, the current is constant only between these two boundaries. In the region of the calms it is very weak, and often entirely ceases. But in those regions in which the southern trade-winds blow, it is again perceptible and constant, except along the coasts of Africa, where it has rather a northerly than a westerly motion; the latter, however, becomes by degrees more prevalent in proportion as the wind takes that direction in advancing to the west. The mean velocity of this current is from 9 to 10 miles per day, or, according to the computation of Humboldt, only one-fourth of the velocity with which those rivers in Europe commonly flow on which observations have been made.

The drift-current, which in the northern portion of the Atlantic is produced by the prevalent westerly winds, flows in a westerly direction; but it is not perpetual, and is so slow, that, when a ship keeps clear of the Gulf Stream, it only manifests itself generally on the whole course of a voyage from Europe to America and *vice versâ*, retarding the former and forwarding the latter.

It is easy to conceive that the drift-currents, especially the permanent, are very favourable to navigation, by rendering the voyages to some countries more easy, more certain, and less dangerous. But the *stream-currents* are much less so. Up to the present time they have commonly proved adverse, causing great loss of life and property, and forcing vessels out of their course. Many navigators, running from Madeira to Teneriffe, and expecting to arrive at the latter island, have unexpectedly found their vessels cast upon the shores of Africa, nearly 300 sea miles out of their course. Such errors can only be detected by frequent astronomical observations, and by comparing them with the dead reckoning. If they are not detected in time, shipwrecks sometimes become unavoidable.

We cannot compare the stream-currents of the ocean with the rivers of the continents. The stream-currents cover such a portion of the surface of the sea, that were they transferred to the continents, they would no longer be considered as rivers, but as large branches of the sea. The causes to which they owe their origin are still involved in obscurity; our observations have not yet penetrated into the depth of the sea,—they have only slightly investigated its surface,—and there are some facts which lead to the opinion that the stream-currents are of great depth, and in many parts, if not in all, extend to the bottom of the sea. This indicates clearly that their origin must not be ascribed to changes which take place on its surface, and cannot affect the lower strata of its waters. The opinions which have been formed on this object may be seen under the article CURRENTS. We shall here only notice the largest of the current streams which belong to the Atlantic Ocean, and indicate their extent, velocity, and temperature, their only properties which, up to this time, have been in some degree ascertained.

Two large stream-currents traverse the Atlantic Ocean; the *Equatorial Current*, running from the coast of Africa to that of South America, and the *Gulf Stream*, flowing from North America to the shores of Europe.

The *Equatorial Current*, so called from its course lying under or near the Line, may be supposed to be formed between the islands of St. Thomas and Anno Bom, in the bight or bay of Benin. Hence it proceeds to the west on both sides of the equator, as far as 22° W. long., where it sends off a branch to the north-west. Soon afterwards it declines somewhat to the south, and runs in this direction towards the two capes of St. Augustin and St. Roque, on the Brazilian coast. At the distance of about 100 sea-miles from these capes, it divides into two currents; the northern, running along the shores of Guiana, and hence deriving the name of *Guiana Current*, enters the Caribbean Sea by the straits which separate the Leeward Islands, lying to the south of Martinique, from each other and from the continent of South America; and in some measure in this sea it may be supposed to terminate its course. The *Brazil Current*, or the other branch of the equatorial current, runs to the south-west along the shores of Brazil, to the mouth of the Plata River, and may even be traced to the Straits of Magalhaens and of Le Maire. The whole length of this current, from St. Thomas to Cape St. Roque, amounts to upwards of 2500 nautical miles; and if we add the Guiana current, from the point of division opposite that cape to the strait dividing the island of Trinidad from that of Grenada, its course is increased by 1500 nautical miles more. The breadth of the current is different in different parts. Near the islands of St. Thomas and Anno Bom, it extends not quite over three degrees of latitude, occupying about 160 miles. But, in proportion as it advances to the west, it increases in breadth; opposite Cape Palmas it extends from 1° 45′ N. lat. to near 5 S. lat., thus occupying in breadth more than six degrees, or upwards of 360 nautical miles. Farther to the west it enlarges still more, and attains its greatest breadth, extending over 7° or 8° of lat. from 4½° or 5° south of the equator to 2½° or 3° north of it. Here, therefore, the breadth of the current occupies 450 geographical miles, or not much less than the whole length of Great Britain, from the Lizard to Cape Wrath. But having soon afterwards, between 22° and 23° W. long., sent off a branch to the north-west, it narrows to about 300 nautical miles; and this breadth it probably preserves to the point where it divides opposite the capes of St. Augustin and St. Roque. The velocity of the current is different in different parts, and increases or decreases according to the seasons, it being much greater in summer than in winter. From Anno Bom to 10° W. long. it runs, at an average, from 25 to 30 miles per day; but from 10° to 16° W. long. it is much more rapid—making, in the same time, from 44 to 79 miles at the end of June and the beginning of July. This seems to be the strongest part of the whole stream. But it is only in the months of May, June, July, and August, that it runs with great force; from October to March it is moderate, and sometimes very weak. Between 16° and 23° W. long. lies the common track of the vessels; and here the rapidity of the current rises often to 45, 50, and even 60 miles per day, but its mean velocity may be estimated at about 28 nautical miles; it is strongest near the equator, and stronger to the north than to the south of it. From 23° to the coasts of Brazil, the current becomes rather stronger, and seems to be less affected by the seasons; but its velocity in these parts is not exactly ascertained; it seems, however, to run 30 miles and upwards per day. The temperature of the water in the current varies also, according to the seasons and the different parts of its course, but it is always some degrees lower than that of the ocean. The water of the ocean to the north of the current is 80° or 81° Fahrenheit, and to the south, 78° or 79° in summer; but in the current, the thermometer shows, near Anno Bom and St. Thomas, only 75°, and not more to a great distance westwards, where the temperature falls even to 73°, and at this temperature it remains for more than 12° of longitude. Afterwards it rises again to 74°, and by degrees to 76° Fahr. In summer the temperature of the current may be estimated as being, at an average, 5° or 6° under that of the water of the ocean; but in winter it is much less. This current greatly affects the course of vessels which are obliged to cross it, and creates great delays to those who, passing from the north to the south, traverse the equator west of the 23° of long., carrying them forcibly to the west beyond Cape St. Roque, where they are driven towards the northern shores of Brazil, and are not able to regain their course till after weeks, and even months, of toilsome labour. It is a fortunate circumstance that the direction of this current does not coincide with the region of the calms; otherwise, both together would probably form an impenetrable barrier to the progress of vessels navigating these seas. But the southern trade-wind commonly blows in that region

where the equatorial current runs, at least during those months in which it runs with great force.

That branch of the equatorial current which separates from it between 22° and 23° W. long., and at about 2½° N. lat., is rather favourable to navigation, by forwarding the course of vessels returning from the southern hemisphere. Its course lying in a north-western direction, it may be called the *North-west Current*. Its breadth is considerable, and may be estimated, at the point of separation, at 180 or 200 miles; farther northward, even at 300; and at a more considerable distance, at 240 nautical miles; but its velocity is not so great as that of the main equatorial current. Up to 10° N. lat., however, and even a little farther, it may run from 20 to 24 miles per day; but it then slackens, and becomes less perceptible, though it may at all times be traced to 18° N. lat., and commonly even to 25°. In the latter part it bends more to the northward, and at last is lost in the drift-current, to which it seems to give a north-westerly direction, which is observable all the way from 35° W. long. to Trinidad. The accelerated motion of the drift-current in these seas may also, in some measure, be the effect of this north-west current.

The *Guiana Current* is, properly speaking, the continuation of the equatorial current, and runs from Cape St. Roque in Brazil, to the Island of Trinidad, along the low coast of Guiana, and at no great distance from it. It is of considerable breadth, and of great velocity, running at some places two miles per hour. Here too it is observed that its velocity is much greater in summer than in winter and spring; and it is besides much increased by the waters rushing from the mouth of the Amazon river into the sea; for after this has taken place, the current runs three miles per hour. It is, however, to be observed, that the waters of the Amazon river do not mingle with those of the current: they cut them at right angles, and running with great violence, cause eddies and whirlpools: but at last the river passes the current, and is observable at a distance of 500 miles from its mouth. It is remarkable that the Amazon causes no change in the direction of the current. Farther to the north, the Orinoco enters the current. This river, which pours a prodigious mass of water into the ocean on both sides of the island of Trinidad, enters the current at a very acute angle; and thus soon mixes its water with it, and considerably accelerates its course. Soon afterwards the current enters the Caribbean Sea by the straits lying between Trinidad and the island of Martinique. Between Trinidad and Grenada, it runs from 1 to 1½ mile per hour; less between St. Vincent and St. Lucia; and between the latter island and Martinique its course is reduced to 21 miles per day. Farther to the north, and especially at the Virgin Island, the sea-water runs only from 8 to 10 miles per day, and that is the common rate of the drift current. We find no observations whether the water of this current differs in temperature from that of the ocean. It may be said that the Guiana current is lost in the Caribbean Sea, for in the latter no perpetual current has been observed. The whole course of the Guiana current may be reckoned at about 2500 nautical miles.

The third branch of the equatorial current is the *Brazil Current*, which branches off from the equatorial at 8° S. lat., opposite Cape St. Augustin, at a distance of about 300 miles to the east of it. Between the point where it branches off and 16° or 17° of S. lat. it has considerable breadth, and does not approach the shores of South America nearer than 250 miles. Afterwards it increases in breadth and velocity, and approaches nearer the land. Opposite Cape Trio it is 200 miles from the coast, and runs about 30 miles per day. As the shore south of this cape falls off to the west, the current is at a greater distance; and though it soon changes its direction, it does not approach nearer than 250 miles to the coast, off the mouth of the Plata river, running all this way from 15 to 20 miles per day. It is crossed by the Plata river, just as the Guiana current by the Amazon river. Here too the current of the river is observable in the sea at a distance of upwards of 500 miles, but it seems not to have the least effect in changing the direction of the stream-current, which continues, though much weakened, farther to the south, and may be traced to the Straits of Magalhaens and Le Maire. As this current runs at a considerable distance from the shores of Brazil, the intermediate space is occupied by other currents, which mostly, however, follow the direction of the monsoons which blow along this coast.

The most remarkable, and at the same time the best known of the Atlantic currents, is the *Gulf Stream*, which traverses the sea between the parallels of 36° and 44° in the northern hemisphere. Its origin is in the Gulf of Mexico, where the warm water which enters it from the Caribbean Sea, between Cape Catoche and Cape St. Antonio, by being subjected to a nearly circular rotation, and influenced probably by other causes still unknown, is raised to a high degree of temperature, the thermometer indicating 86°, while under the same parallel (25° N. lat.) the ocean only shows 78°. Two currents, which put in motion perhaps three-fourths of the waters of the Gulf of Mexico, unite about 60 nautical miles to the westward of Havannah, between the bank of Isabella on the side of Cuba, and the Tortugas on that of Florida Reefs; and this union gives rise to the Gulf Stream. In the beginning its course is not rapid, and along the shores of Cuba it is weak, and sometimes nearly imperceptible: but it soon increases in velocity, and before it enters the Strait of Florida at the Salt Kays, it runs one mile and a half per hour on an average; in the strait itself it acquires a formidable swiftness. The Strait of Florida begins at the Salt Kays, a reef lying 114 nautical miles to the north-east of Havannah, and extends thence to the northward, where it terminates between the reefs of Cape Cañaveral and the northern termination of the Lesser Bahama Bank, at about 28° N. lat. After entering this strait, the velocity of the Gulf Stream soon increases to 2½, 3, and occasionally 4 miles per hour; but after running at this rate about 90 miles, it arrives at the Narrows, where, between Cape Florida and the Bimini Islands (a small group belonging to the larger group of the Bahamas), the strait is only 44 miles wide, and its water-way, by reefs and shoals, is straitened to 35½ miles. Here the current runs, in the month of August, at 5 miles per hour, and seldom below 5 through the remainder of the strait, which towards its northern extremity widens to about 50 miles. In this course the current has traversed about four degrees of lat. northward, but its temperature is not sensibly diminished.

Issuing from the Strait of Florida, the Gulf Stream runs northward along the shores of Florida to 31° N. lat., and afterwards nearly north-east along the shores of Georgia and of both Carolinas, as far as Cape Hatteras (about 35° N. lat.). In this course the current widens considerably in breadth, and decreases in velocity and temperature. Opposite the harbour of Charlestown, its breadth is from sixty to sixty-three miles; and at Cape Hatteras, from seventy-two to seventy-five miles. At the latter place it runs only three and a quarter miles per hour, or seventy-eight miles per day, and its temperature has fallen from 86° to 83°. At Cape Hatteras, the north-western or inner edge of the current is twenty-four miles south-east of the cape.

By the falling back of the coast north of Cape Hatteras, the current directs its western edge towards the north, while the main body continues its former course to the north-east to a considerable distance. At about 40° N. lat. it meets the extensive Nantucket and St. George's Banks, which turn it off seaward, and it never after approaches the land. From this point it runs in the direction E.¼ N., brushing the southern extremity of the Great Bank of Newfoundland, and it continues in this line to 43° and 44° long., and 37° and 43° lat. Here, however, it bends by degrees to the east, south-east, and south, and having enclosed the islands of Flores and Corvo, which belong to the group of the Azores, its traces are lost in the water of the ocean. Sometimes, though rarely, the warm water of the current has extended to the shores of Europe. In this part of its course across the ocean, it is very difficult to ascertain the breadth of the current, because the warm water expands to the north and to the south to a considerable distance in the sea, where no current can be traced; in the former direction to a degree, or a degree and a half of latitude; and on the southern side, even to two degrees and a half: it has been met with at 33½° and 34° lat. The strongest current is commonly met with between 38° and 39° lat.; and it is the opinion of many intelligent navigators, that the breadth of what may be called a current does not exceed 100, or 120 nautical miles. The warm water sometimes only extends to 140 miles, and then it seems to occupy only the current, but at other times it is found to cover 186, 240, 270, and even 320 miles. It does not seem that this difference in the extent of the warm water is affected by the seasons, for both extremes have been found to exist in the same month (May), between 63° and 65° long. It is very probable that the main current does not always run in the same places, but

is subject to some changes in its position, though probably not much in its direction. Its velocity decreases gradually in its progress to the east. Between the meridians of 65° and 66° it runs between fifty-five and fifty-six miles per day; and 900 nautical miles farther to the east, from thirty to thirty-three miles. After it begins to bend to the east and south-east, its velocity diminishes more rapidly; in the neighbourhood of the Azores, its mean rate does not exceed ten miles per day, having lost twenty miles per day in a course of only 600 miles. The temperature of its water likewise decreases during all this course, but at a slower rate. For, 600 nautical miles from Cape Hatteras, or under the meridian of 63½°, the thermometer shews 81° in summer, or from 10½ to 11½° above the water of the ocean under the parallel, after having traversed 4° of lat. Hence, to 42½° lat. and 43½° long., it loses 5½° of heat, the thermometer falling from 81° to 75½°. Thence to Corvo, the thermometer descends from 75½° to 72½°, still preserving a temperature 8°, or 10° above that of the ocean.

Where the Gulf Stream brushes the Great Bank of Newfoundland, the warm water of the current is about 8° higher than that of the ocean, but the water of the ocean exceeds that which covers the Great Bank by 25°. These different degrees of temperature, though existing so near one another, can never attain an equilibrium, because each of them proceeds from a cause which is peculiar, and whose influence at the same time is permanent. To this difference of temperature, perhaps, the fogs on the banks and the coast of Nova Scotia may be attributed.

The whole course of the Gulf Stream, from the Salt Kays to the south-west of the Azores, amounts to upwards of 3000 nautical miles, in which course it traverses from 19° to 20° of lat. (23° to 42°, or 43°), and diminishes in temperature 13½° (from 86° to 72½°). According to Major Rennell, it arrives at the Azores in seventy-seven or seventy-eight days.

The Gulf Stream, being itself of considerable breadth, and covering besides with the warm water brought down by it large tracts of the sea on both sides of its course, forms a vast expanse of warm water in the centre of the North Atlantic. It extends from the 30th meridian to the 75th, and sometimes covers in breadth at the east end all the sea from 33° or 31° to 45° N. lat., but at its western extremity it contracts to about 160 or 170 nautical miles. It is accordingly 2000 miles in length, and, at a mean, 350 miles in breadth, and thus forms a more extensive surface than the Mediterranean Sea. This body of water contains, besides the stream itself, its counter-currents, offsets, overflowings, and deposits, the current itself possibly not occupying one-half of this space. The Mexican Sea may therefore be considered as a vast cauldron for heating water, which is distributed over the central parts of the North Atlantic. It cannot be questioned that such a vast expanse of warm water, from 8° to 10° above the temperature of the sea, must have a great effect on the surrounding sea and the adjacent countries. This point, however, has not yet been fully elucidated. It is only ascertained that the region of the Gulf Stream, more than any other part of the ocean, is subject to very violent storms, which are most frequent to the north of 32° and 33° N. lat. Farther, it is not improbable that the mild climate by which the countries along the coast of the Atlantic Ocean are so favourably distinguished from those farther inland, is mainly due to the evaporation continually arising from the surface of this immense lake of warm water, just as the high temperature of the Mediterranean is supposed to contribute greatly to the very favourable climate of the countries on its shores.

The Gulf Stream greatly affects the navigation of the Atlantic Ocean. Vessels bound from Europe to North America avoid it as much as possible, because it would create a delay of at least a fortnight if they were to stem it. They therefore either sail to the south or to the north of it, commonly the latter, their course being accelerated as soon as they approach the continent of North America by the counter-currents which run between the Gulf Stream and the coast. The Gulf Stream is now avoided even by vessels returning from the West Indies and the Gulf of Mexico, though by following its course they arrive four or five days sooner in Europe than those which avoid it. But it has been found by experience that such vessels suffer a damage in wear and tear, which is greater than can be compensated by the gain of a few days. The Gulf Stream, for nearly the whole breadth of the Atlantic, is navigated through stormy latitudes; whilst it is only necessary to navigate one-third of it when another course is chosen, and therefore vessels returning from the West Indies have resumed the old road, used before the discovery of the Gulf Stream, south of the Bermudas to Corvo.

Besides the Gulf-Stream, two other currents in the North Atlantic deserve notice, the Arctic Current and the North African or Guinea Current. The *Arctic Current*, which seems to originate in the extensive masses of ice which surround the North Pole, runs down along the eastern shores of Greenland, whence it carries numerous ice-fields to the south-westward. These masses, along the coast of Greenland, are found extending from 250 to 300 miles from the shore into the open sea, and mark, as it were, the breadth of the current, which fills with them the strait that divides Iceland from Greenland, and carries them to Cape Farewell, the most southern extremity of Greenland. It then turns round the Cape and runs up the western coast of Greenland; but it seems that it afterwards crosses obliquely Davis's Strait, and is turned to the southward by Cape Walsingham (about 66° N. lat.). For, from this Cape a current of eight or nine miles per day runs to the southward, which at the mouths of the straits of Cumberland and Hudson increases in velocity to fifteen or sixteen miles per day. It follows the coast of Labrador until it arrives at the strait of *Belle Isle*, separating Newfoundland from the continent of America, where it divides, sending a branch through the strait, which afterwards joins the outfall of the St. Lawrence river, while the main body of the current running to the east of Newfoundland passes between the Great and the Outer Bank of Newfoundland, or between 45° and 46 lat. and 46° and 47° long., and at last joins the Gulf Stream between 43 and 47° of long. The breadth of the current in this part probably does not exceed 200 or 240 miles, but its temperature is always below that of the ocean, sometimes as much as sixteen or seventeen degrees. This is mainly to be attributed to the ice brought down by it from the coasts of Greenland, and from the Strait of Davis.

The *North African* or *Guinea Current* has its origin in the sea, between the southern coast of Ireland and Cape Finisterre in Spain, and it is difficult to determine its position more positively. It is, however, a known fact, that the whole body of water between Cape Finisterre and the Azores is in motion to the south and south-east, the western part running more southerly, and the eastern, lying towards the continent of Europe, more easterly. As far as Cape St. Vincent, it runs half a mile per hour, but from that promontory southward about three-fourths of a mile. To the south of Cape St. Vincent, the coast of Europe and Africa form as it were the pipe of a funnel; and here it is observed that the whole body of water between the above-named cape and Cape Cantin on the African coast, and as far westward as the 20th meridian, sets towards the Strait of Gibraltar, probably to supply the deficiency of the water caused in that close sea by the evaporation produced by its higher temperature, which is 5° or 6° above that of the ocean under the same latitude. From Cape Cantin to Cape Bojador (26° 7′ N. lat.), the motion of the sea, for a distance of more than 300 nautical miles from the land, points nearly towards the shore; and the same direction is observed to Cape Blanco, 5° farther south, but in the latter space it extends only from 150 to 180 miles from the land. This current along the coasts of the Sahara, united to the westerly wind which continually blows in this sea, renders it extremely dangerous to the unwary navigator, and has been the cause of numerous shipwrecks. From Cape Blanco to Cape Verde, the current along the coast sets somewhat to the west of south, and identifies itself with the drift-current of the trade-winds; but it does not mingle with it, as is indicated by the lower temperature of its water, which near the Cape de Verd Islands is 8° lower than that of the ocean moved by the drift-current. At the Cape Verde Islands it turns slowly round towards the south, and afterwards towards the S.E. and E.S.E., influenced by the form of the coast of Africa. Between Cape Verde and Cape Mesurado, the distance of the current from the shore is about 200 nautical miles, and this space is occupied by periodical currents. Having passed Cape Mesurado, the current sets due east, and runs here with increased rapidity, sometimes at the rate of two miles per hour. It ranges along the coast of Guinea, until it is partly dissipated in the sea opposite the mouth of the Quorra, between the Bay of Benin and of Biafra, and partly stopped

a-head by the Equatorial Current. The Guinea Current extends along these coasts, at a mean, about 180 miles, or 3° in breadth; and its greatest velocity is during the season of the S.W. winds (from June to September), in the sea lying west of Sierra Leone and south of the Cape Verde Islands. Its temperature is lower than that of the ocean by several degrees as far as the Cape Verde Islands, where the difference sometimes, as we have already observed, amounts to 8°; but to the south of these islands it receives a large accession of water from the westward, by which its temperature is raised at once several degrees.

We conclude these observations on the currents of the Atlantic Ocean, by noticing that branch of the Guinea Current which separates itself from the main stream nearly at its origin, and passes to the east along the southern part of the Bay of Biscay. After coasting the northern shore of Spain, it turns to the N. and N.W. along the coasts of France, and shooting across the mouths of the English and Irish Channels, it bends round to the W. and thence through all the intermediate points to the S.E., till it falls again into the original current, performing a complete rotation between Spain, France, and the Atlantic at large. The N.E. side of this vortex shoots off to the N.W. and across the two channels, and thus forms the current which so often places ships in danger near the Scilly Islands. This current, the exact knowledge of which we owe to the indefatigable industry of the late Major James Rennell, bears his name, and is called *Rennell's Current.*

It is commonly thought that the temperature of the southern hemisphere is considerably lower than that of the northern, and that the difference amounts at least to ten degrees of the scale of Fahrenheit. Baron Humboldt, who has collected and compared a great number of observations, thinks that near the poles and in very high latitudes such a difference and even a much larger one exists, but that not the least is to be observed between the tropics, and only a very small difference as far as the 35th and 40th parallel. His researches lead him to think, that from the equator to 34° lat., the winters are less cold in the southern than in the northern hemisphere, and even at the Falkland Islands (51° S. lat.) the month of July is milder than the January at London. Since Baron Humboldt published his researches, new observations have been made, especially by Captain Scoresby and Captain Weddell, from which it appears that the supposed difference between the temperature of both hemispheres in higher latitudes does not exist in the open sea, and it seems that most of the facts collected by Humboldt were made near the shores of America, which must powerfully influence the temperature of the adjacent sea. [See CLIMATE.]

The fact, however, that the ice advances much farther to the south in the Northern, than to the north in the Southern Atlantic, deserves to be noticed more particularly.

The region of ice which surrounds the North Pole has not been attained, and therefore our information concerning it is extremely scanty. Till lately, it was thought that all the ice extending from the Pole to a distance of about nine degrees, formed one continuous, undivided, and immoveable mass. But the attempt made by Captain Parry to reach the North Pole in the summer of 1827, shows that this apparently immense ice-field is divided into a great number of comparatively small pieces, and that these pieces, instead of being stationary, are continually on the move toward the south or south-west. It is, however, very probable that this condition of the polar ice was produced by the heat, which even in those high latitudes is considerable during the long day of the summer, and that with the return of the long night and the cold they are cemented together by the frost, and form one undivided mass. The pieces of ice, which in summer are detached from this mass, and move to the southward, probably by the impulse given to them by the Arctic Current, are carried along the eastern coast of Greenland to Cape Farewell in close masses, so that they only can be penetrated in the summer months with much labour and peril by bold navigators. In winter, they seem to be fixed to the coast, and to become stationary by the intensity of the frost, and even to extend over a part of the Atlantic which in summer is free from ice. The whale-fishers who annually visit the Spitzbergen Sea and Davis's Strait find that these masses of ice form in the month of May an irregularly waving but generally continuous line from Newfoundland and Labrador to Nova Zembla.

This continuous line of polar ice extends from Newfoundland in a northerly direction along the Labrador shore, generally preventing all access to land, as high as the mouth of the Hudson Strait; then turning to the north-eastward, it forms a bay near the coast of Greenland in about 66° or 67° lat., by suddenly passing away to the southward to the southern extremity of Greenland. But this bay usually formed by the ice at 66° or 67° lat. does not always exist. The quantity of ice on each side of Davis's Strait is often small, and then the continuity of the ice-masses is liable to be broken, so as to allow ships to reach the land. It sometimes happens that the sea is open up Davis's Strait to a considerable distance beyond the assigned latitude of 66° or 67°. After doubling Cape Farewell, the most southern promontory of Greenland, the line of the polar ice advances in a north-eastern direction along the east coast, sometimes enveloping Iceland as it proceeds, until it reaches the island of Jan Mayen. Passing this island on the N.W., but frequently enclosing it, the edge of the ice then trends a little more to the eastward, and usually intersects the meridian of Greenwich between the 71° and 73° lat. Having reached the long. of 5° or 6° east, and in some instances as far as 8° or 10°, it changes its direction at once, and by suddenly stretching to the north, it forms nearly a right angle, or a kind of promontory. Hence it proceeds northward nearly in the same meridian as far as the 80th parallel, where it joins Hackluyt's Headland, and then passes southward along the coast of Spitzbergen to Cherie Island, which is between Spitzbergen and the North Cape. Having passed this island, it assumes a more direct course a little to the south of east, until it forms a junction with the ice enclosing the island of Nova Zembla.

That remarkable promontory, midway between Jan Mayen and Cherie Islands, formed by the sudden stretch of the ice to the north, constitutes the line of separation between the east, or *whaling*, and the west, or *sealing ice*, of the fishers; and the deep bay lying to the east of this promontory and the west of Cherie Island, which may be called the *Whale-fisher's Bight*, invariably forms the only pervious track for proceeding to the fishing latitudes northward. When the ice at the entrance of this bay occurs so strong and compact as to prevent the approach to the shores of Spitzbergen and the advance northward to lat. 74° and 75°, it is said to be a *close season*; and, on the contrary, it is called an *open season* when an uninterrupted navigation extends along the western coast of Spitzbergen to Hackluyt's Headland. In an open season, a large channel of water lies between the land and the ice, from 60 to 150 nautical miles in breadth, extending to lat. 79° and 80°, and gradually approaching the coast of Spitzbergen, until it at length effects a junction with the north-western extremity of it, or with Hackluyt's Headland, by a semi-circular bend. But though in an open season the ice is interrupted between Greenland and Spitzbergen, it preserves its continuity to the south of the latter islands, proceeding from thence direct to Cherie Island. In a close season the ice stretches across the entrance of the Whale-fisher's Bight, and joining the south of Spitzbergen, forms a barrier against the fishing stations; yet this barrier is often of a limited extent, and terminates on the coast of Spitzbergen in an open space, either forming or leading to the retreat of the whales. This space, however, is sometimes frozen over until the middle or end of the month of May, but it is not unfrequently free from ice. The barrier itself which is here opposed to the fishers at the entrance of the bay, usually consists of a body of ice from 60 to 90 or even 120 miles across in the shortest diameter, and is generally formed of smaller pieces of ice, called pack ice, often cemented into a continuous field by the intermixture of newly-formed ice. Behind this barrier the sea is commonly open up to 80°. Captain Parry, in his expedition to the North Pole, found it pervious for boats as far as 81° 12′ 51″; and, in summer, this open space appears to extend to the north-eastern extremity of Spitzbergen. The barrier of ice which in a close season shuts up the entrance of the Whale-fisher's Bight in May, disappears invariably in June, and then the sea is rendered freely navigable, from the very haunt of the whales to the expanse of the Atlantic.

Similar changes take place in the ice of Hudson's Bay, Baffin's Bay, and Davis's Strait. The navigation of the former bay is first interrupted by ice, generally in the month of November; but on the east side of Davis's Strait it does not usually make its appearance under the land until

the spring. Little progress can be made through the ice into the great bays of Hudson and Baffin until the months of June and July, when a passage to the extremity of each bay is gradually opened. In the months of August and September the ice of the bays seems to be the most open; and, in the Straits of Davis and Hudson almost entirely dispersed.

The ice met with in the sea between Greenland and Spitzbergen consists commonly of *ice-fields*, or pieces consisting of a single sheet, with its surface raised in general four or six feet above the level of the sea, and its base depressed to the depth of from ten to twenty feet beneath. But the deficiency in elevation is sufficiently compensated by the amazing extent in surface, some of these ice-fields being many leagues in length and covering an area of several hundred square miles. *Ice-islands*, or *ice-bergs*, are also found; but they are neither so numerous nor so bulky as those of Baffin's Bay, where they attain an immense size: that which was described by Captain Ross and measured by Lieutenant Parry, was aground in sixty-one fathoms: it was 4169 yards long, 3689 yards broad, and 51 feet high; its weight was calculated to amount to 1,292,397,673 tons.

It is very probable that the ice which is brought down by the Arctic current to the very centre of the North Atlantic, originates in the Bay of Baffin and the Strait of Davis; for it consists almost entirely of ice-bergs. When the sun returns to the arctic region, and the icy bonds which connect these bodies with the continent have been dissolved, they descend in numerous masses along the coasts of Labrador and Newfoundland, some of them entering the Gulf of St. Lawrence by the Strait of Belle Isle. From Newfoundland they advance farther to the south and south-east, and are often met with in the Gulf Stream itself, between 56° and 46° W. long., and as far south as 40½° N. lat., from the month of April to that of November. Some of them even here are of vast size, but all in a state of rapid thaw. They cool the water sensibly to a distance of 40 or 50 miles around them; and the thermometer sinks sometimes no less than 17 or 18 degrees, from 61° or 60° to 43°, in their neighbourhood.

In the southern hemisphere the ice does not advance to such low latitudes in any part of the sea. Captain Cook did not see any before he had passed the 50th or even the 52nd parallel; and Captain Weddell not before he reached 57½° lat. Captain Weddell having found it in a rather crowded state between 59° and 69°, to the north and south of that chain of islands which are known under the names of the South Shetlands and New Orkneys group, arrived to the south of 70° lat. in an open sea, where not a particle of ice was found at 73° 17′ lat. and 35° 55′ long. W., and even at 74° 15′ only a few ice-islands were met with. It therefore appears that the South Atlantic is much less encumbered with ice than the North Atlantic, probably because it contains much less land.

Captain Cook observed, that the ice about the Antarctic Pole, in the South Atlantic, extended farther north than in the Pacific. Very few vessels, he says, met with ice going round Cape Horn, and very little is observed below the 60th degree of lat. in the Pacific. But between the meridian 40° W. and 50° or 60° E., it advances as far north as 51°. He hence inferred the existence of a southern continent. But it is now known that the ice found at this latitude owes its origin to the chain of islands above-mentioned, and to the extensive coast lately discovered in the neighbourhood by Captain Biscoe (*Geogr. Journ.* iii.), and that to the south of it the sea is open and entirely free of ice.

It may be considered as a peculiarity of the Atlantic Ocean, that a considerable part of its surface is covered with *sargasso*, or gulf-weed, *fucus natans*. The region of this weed extends nearly across the whole Ocean, beginning on the east at the 30th meridian, and extending on the west to the Bahama Islands. Its northern limit may be placed at 36° N. lat., and its southern at 19° N. lat. The whole region, however, is not equally crowded with weed, the greatest quantities being met with at the eastern and western extremities; on the east, nearly under the meridian of the islands of Corvo and Flores, the most western of the Azores, where, between lat. 25° and 36°, and long. 30° and 32°, it forms first a narrow stripe, but, to the southward, expands to a great width. This region is called by the Portuguese *Mar de Sargasso*, or weedy sea. The quantity of the weed is really astonishing. It covers, like a mantle, the surface of the sea for many miles, and extends for more than 1200 miles from north to south. The western region extends between the parallels 22 and 26, about the meridians of 70 and 72, where the weed also is found in a very crowded state. The intermediate region is less so; and it would even seem that in some parts the sea is only lightly strewed with it, whilst in others it is much more frequent. It is observed that the greatest mass of this weed is found at that part of the Atlantic where the Gulf Stream terminates; and the other great extent, where the counter-current of the Gulf Stream, which runs along its southern border, unites at the Bahamas with the drift-current of the North Atlantic. Much of this weed is brought down by the Gulf Stream from the Sea of Mexico; but the quantity is so great, that it is reasonably supposed that most of it must be produced in the Atlantic itself at the bottom of the sea.

It is a known fact that the waters of the Atlantic Ocean, in different parts, contains different quantities of salt; and several persons have been at some pains to ascertain the amount of this difference, but no satisfactory results have yet been attained. We know only with certainty that the specific gravity of the sea-water is less near the poles than between the tropics and under the equator; but how great that difference is remains uncertain. Captain Scoresby found the specific gravity of the sea-water near the coast of Greenland to be between 1·0259 and 1·0270; and others have observed it between the tropics to be 1·0297, and near the equator even 1·0578; but the latter observation is rendered doubtful by others, which gave a different result.

Another remarkable fact, which has been better ascertained, is the difference between the specific gravity of the water of the Baltic and Mediterranean Seas and the Ocean. That of the Baltic contains only one-sixth of the salt which is found dissolved in the Ocean, its specific gravity being on an average not more than 1·0049. The Mediterranean Sea contains somewhat more salt than the Ocean: to the east of the Straits of Gibraltar, the specific gravity of the sea-water is 1·0338; whilst between Cape St. Vincent and Cape Cantin it was only found to be 1·0294.

As to the Banks and Fisheries in the Atlantic, see the articles NEWFOUNDLAND, BERGEN FISHERY, WHALE FISHERY, &c.

(Humboldt's *Travels;* Rennell's *Investigation of the Currents in the Atlantic Ocean; Account of the Arctic Regions by* Scoresby; *Voyages of* Cook, Ross, Parry Scoresby, and Weddell.)

ATLAS is the historical and geographical name of an extensive mountain-system, which covers, with its ranges, branches, and table-lands, the north-western part of Africa. Its southern boundary lies between 27° and 32° N. lat., from Cape Nun on the Atlantic Ocean to the Gulf of Cabes, or the Little Syrtis, opposite the island of Jerbi; the northern is formed by the southern coast of the Mediterranean Sea between Cape Spartel at the Straits of Gibraltar and Cape Bon, lying E.N.E. of the town of Tunis. The coast formed by its offsets and terraces along the Atlantic Ocean extends upwards of 600 geographical miles, and is partly low and sandy, and partly rocky, but does not rise to a great height, except at Cape Geer and a few isolated places of small extent. The coast along the Mediterranean between Cape Spartel and Cape Bon is generally rocky and high; in many places the elevation is very great, and it continues for a considerable extent. Between Cape Bon and the Gulf of Cabes it is likewise generally rocky to Cape Vada, but it does not rise here to a great height, and is in many places interrupted by a flat sandy shore. From Cape Vada to the island of Jerbi, along the Lesser Syrtis, it is extremely low and sandy.

The southern boundary of the Atlas is formed by the Great African Desert, or the Sahara; from which, as far as we know, it is separated by low sandy hills, which have been blown up by the winds, and which gradually encroach upon the gentle declivities with which the mountains terminate on this side. On the west of the Gulf of Cabes, the Nofusa Mountains, which are the last offset of the Atlas towards the east, are connected with the Ghuriano Mountains, which extend towards the S.E., through the kingdom of Tripoli, but for good reasons are considered as not belonging to the system of the Atlas Mountains.

Within the boundary here assigned to these mountains is comprehended the whole of the empire of Fez and Marocco, and that of the regency of Algiers, as well as the

greatest part of the regency of Tunis. The area of these countries may amount to upwards of 500,000 square miles, in which case the Atlas system would cover a space not much inferior to France, Germany, and Italy, taken together. This vast extent of country, however, does not consist entirely of mountain-ranges and valleys, but a considerable part of it forms level plains, which, especially towards the shores of the Atlantic, are very large: and even between the mountain-ranges along the Mediterranean there are many plains.

The principal chain, by which we mean to indicate the highest ranges of the whole system, does not run parallel to the whole mountain-region from west to east, but forms rather an irregular and winding diagonal, whose principal direction lies from W.S.W. to E.N.E. It begins on the shores of the Atlantic Ocean with Cape Geer, which rises nearly perpendicularly out of the sea to a great elevation, and extends nearly due east to the meridian of the city of Marocco, where it turns to the E.N.E., in which direction it continues to the sources of four large rivers, the Wad Oom-erbegh (Morbeya), Muluïa or Muluvia, (the antient Molochath, or Mulucha,) Ziz or Tafilelt, and Draha (Draa). At this place there seems to exist an extensive mountain-knot, which contains, as far as we know, the highest summits of the whole system. The highest range stretches hence nearly due north, but soon declines somewhat to the east, in which direction it approaches the Mediterranean. But though an offset terminates with the Cabo de Tres Forcas, near Melilla, it is not the principal chain; for this, at a considerable distance from the sea, seems to decline to the east, and to traverse the almost unknown region designated by the name of the Desert of Angad, through which the boundary-line between the empire of Marocco and Algiers passes. The chain, up to this point, is called by the Europeans Greater Atlas; by the natives, Daran, or Jebel Tedla (Adtla). The principal chain again appears in the territory of Algiers, where the highest part bears the name of Wan-nash-reese, and terminates on the banks of the Shellif, the valley of which river probably interrupts the continuity of the range. To the east of it, however, it rises again, and forms, south-east of the town of Algiers, the high summits of the Jurjura Mountains. Up to this point the range runs nearly parallel with the sea-coast, at a distance of from thirty to forty miles. But hence it declines somewhat to the S.E., and takes the names of Mountains of Wannougah, and of I-aite. Farther to the east, at about 8° E. long. it is called the Aturess Mountains: and here it begins to approach the coast again, entering, under the name of the Mountains of Tipara or Tiffash, the territory of Tunis; it terminates with Cape Blanco and Cape Zibeeb, north of the town of Tunis.

Little is known respecting the height of these mountains. Only one summit has been measured, the Miltsin, twenty-seven miles S.E. of the town of Marocco, which is free from snow only once in about every twenty years, and, according to the measurement of Lieutenant Washington, rises to 11,400 feet above the level of the sea. It is further agreed, that the highest summits of the whole range are in the mountain-knot, near the sources of the rivers Oom-erbegh and Muluvia, where a considerable part of the chain is always covered with snow. These summits are estimated by Ali Bey to rise 13,200 feet above the sea, but Graberg of Hemsoe thinks that mount Hentet attains the highest elevation, being upwards of 15,000 feet, and that the range in this part is not inferior to the Alps in height. The chains along the Mediterranean, which commonly receive the general name of Lesser Atlas, are much lower. Shaw states that those of Wan-nan-sheere and Jurjura are the highest, and covered with snow a considerable part of the year; and the French naturalist, Desfontes, estimated their height at 7200 feet. Farther to the east they decrease considerably in elevation.

We observe, with respect to the principal chain, that up to the point where it enters the desert of Angad, it forms the line of separation between the rivers flowing into the Atlantic Ocean and those that run north and south into the Mediterranean Sea, or the Sahara. The Lesser Atlas, however, does not form such a line of separation between water-courses running towards different points; the principal rivers which enter the Mediterranean rise to the south of it in a lateral chain, which runs nearly parallel to the principal, and make their way through the latter.

The best known of the lateral chains is that which may be considered as the western continuation of the Lesser Atlas: it probably separates from the principal range where it enters the desert of Angad, and runs along the shores of the Mediterranean Sea at a distance of about thirty miles, and even less. It terminates opposite to Gibraltar in the bold Cape of Ceuta, called by the natives Jebel d'Azute (mountain of monkeys), and in Cape Spartel. This chain is thought to rise only to about 2500 feet above the sea in the highest part, and is the only one which traverses the extensive country lying to the west of the principal range.

The numerous branches which lie to the south of the Lesser Atlas, and cover the country between it and the Great Desert, are very imperfectly known as to their height, extent, and connexion with one another. It would seem that the most northern of these chains, that in which the larger rivers (the Shellif, Seibouse, and Mejerda) take their origin, and which contains the Zackar Mountains, is the highest, and that they lower as they approach the Sahara. This fact we may infer from the statement of Shaw, who moreover observes, that these mountains do not attain the height of those of England, rising at an average only to four, five, or six hundred yards of perpendicular elevation.

One branch separating from the principal chain and extending towards the Sahara, runs south-west, and terminates at Cape Nun. It divides the country about the rivers Suse and Wad Messa, which flow into the Atlantic from the region drained by the river Draha, which is absorbed in the loose sand of the Sahara. It is nearly unknown, but probably rises only to a moderate height.

As the Atlas Mountains have been traversed by very few Europeans, and have never been subjected to the examination of naturalists, their geology is nearly unknown. All our information concerning this point is limited to the fact, that the lower skirts of the ridges are formed by secondary limestone, and that this formation probably covers the mountains to an elevation of three or four thousand feet. What constitutes the basis of the mountain masses is entirely unknown. No traces of volcanic agency have yet been discovered. As to the more striking features of external form, it is generally agreed, that they differ considerably from the Alps. The Atlas does not exhibit pointed peaks, or narrow and sharp edges, but its form every where shows a decided tendency to extensive table lands, broad ridges, and rounded summits. On each side of its declivity the range supports two, three, or more table-lands, at different elevations above the level of the sea, and separated from one another by rather steep slopes. The summit of the range, however, is formed by great masses of rock which are generally inaccessible, or nearly so; in many places they rise perpendicularly. In a few places these masses are rent asunder by long and narrow crevices, through which the mountain-passes lead from one side to the other. Jackson states that only two such passes exist between Marocco and the province of Suse, and he calls them Bebavan and Belavin; the difficulty of passing through them with an army renders the possession of the provinces situated to the south and south-east of the principal chain precarious to the emperor of Marocco. This description applies more particularly to the Greater Atlas; but in part also to the Lesser Atlas: Shaw states that the mountains in Algiers generally rise with a gentle acclivity, and are covered with a succession of groves and ranges of fruit and forest trees, and that only occasionally a rocky precipice of more difficult access occurs. Yet he notices in his topographical description several very difficult mountain-passes, as the mountain-pass of Beeban, through which the great road between the town of Algiers and of Constantina lies. It would seem that this peculiarity in the form of these mountains offers one of the greatest difficulties which the French have encountered, and are still encountering, in subjecting the territories of Algiers.

As the Atlas Mountains, in some places, rise above the line of perpetual congelation, and in many others approach this line; and as, at the same time, the southern declivity is turned towards, and is as it were contiguous to, the Great African Desert, where the greatest quantity of heat is developed on the surface of the globe, it is of course to be presumed that on the sides of the Atlas the greatest extremes and variations of temperature occur. Their investigation would doubtless enrich our knowledge of nature; but no attempt of this kind has yet been made. We only learn from travellers that on the low plains at the southern foot of the mountain and within its lower ranges, the date-

palms cover extensive tracts; that the higher lands abound in gum trees, almonds, olives, and other productions of the hotter countries; that the lower table-lands produce apples, pears, cherries, walnuts, apricots, and other fruits, common to the southern countries of Europe; and that, proceeding higher up the ranges, the plains are covered with pines of an immense size, with a species of oak, called the *belute*, the acorn of which is used as food, and is preferred to the Spanish chestnut, and with ferns, elms, mountain-ash, and several species of juniper. Higher up large forests of firs form the principal vegetation.

The metallic riches of these mountains are not much better known than the botany. Rich mines of different kinds exist in that lateral range which separates the province of Suse from the countries on the river Draha; it abounds especially in iron, copper, and lead. Ketewa, a district east of Tarudant, contains rich mines of lead and brimstone; and saltpetre of a superior quality abounds in the neighbourhood of Tarudant itself. About fifty or sixty miles south-west of that town are mines of iron of a very malleable quality, equal to that of Biscay, in Spain. At Elala, in the same ridge of mountains, are several rich mines of copper, some of which are impregnated with gold; and in the same place there is also a rich silver mine. Mines of antimony and lead are likewise found in Suse. In the bed of the river Wad Messa, particles of silver may be collected. In other parts, as in the Lesser Atlas, mines of iron, lead, and sulphur are found. Salt is collected in many places, the soil being strongly impregnated with it.

These mountains are inhabited by lions of the fiercest kind and the largest size; and they abound in antelopes, monkeys of different species, and in porcupines; but their zoology has never been well investigated.

Having taken a general view of the principal features of this extensive range, we shall briefly describe the nature of the countries which may be considered as included in its bosom.

The countries to the south of the principal range, and west of the meridian of London, may be divided into two regions, one of which contains the provinces of Tafilelt and Draha, and the other Suse. The first belongs to that region which is called Biledulgerid, or, with more propriety, Beled el Jereed (land of dates), and extends along the southern declivity of the whole system. It consists of gently-inclined plains, which spread to the foot of the mountains, but do not produce anything adapted to the maintenance of human life: it is only on the banks of the few rivers, whose water is strongly impregnated with salt, and which lose themselves in the sands of the Sahara, that large groves of date palms are planted; the fruit of the date, with camels, horses, and cattle, are the sole wealth of the few inhabitants of this region.

The province of Suse is divided from that of Draha by a range of mountains, and displays quite a different character. It is well watered, and abounds in every sort of agricultural produce, and especially in different kinds of fruits. The plantations of dates are numerous, and those of olives still more extensive. The country may be considered as a plain with some small hills dispersed upon it.

The country included by the Greater Atlas, by that lateral branch which terminates at the Straits of Gibraltar, and by the Atlantic Ocean, may be considered as a plain, which exhibits at its southern and northern extremity extensive level and low countries, its centre, between the rivers Seboo and Oom erbegh, is occupied by an elevated tableland, which descends in regular terraces towards the ocean. The distinguishing features of these three divisions will be given under the article MAROCCO.

The countries to the east of the principal chain display a much greater diversity in their nature. They may be divided into two parts, of which the northern comprehends the Tell, or the land adapted to agriculture, the southern is partly comprehended under the name of Beled el Jereed, though, as Shaw observes, it is called by the natives the Sahara, which name cannot be applied to it in the sense in which that term is understood in Europe.

The Tell comprehends all the countries which are watered by the rivers falling into the Mediterranean. Its northern half is occupied by the high lands of the Lesser Atlas, and presents only a succession of mountains, declivities, and narrow valleys, without any plain of considerable extent intervening, except between the Capes of Ras Accon-natter (Cape Caxinus) and Cape Matifu, on both sides and to the south of the town of Algiers, where the country exhibits only moderate hills rising on a rather level country. But to the south of the Lesser Atlas, and between it and the mountains in which the large rivers take their origin, the country extends in large level plains along both sides of the rivers; these plains abound in every produce of agriculture and horticulture. Such are those of Hadjoute and Mettijah, and the country about the large town of Constantina, as well as on the Mejerdah, in Tunis, and many others: they form the most fertile and best cultivated part of these countries.

To the south of the Tell lies a country, which, in many respects, may be considered as one of the most remarkable on the surface of the globe. It consists of a succession of completely-closed valleys, with a temporary or permanent lake in their hollows, the receptacle of the waters that flow down from the adjacent mountains. It would seem that such valleys extend from the low shores of the Lesser Syrtis, through the whole region, up to the chain of the Greater Atlas, and doubtless they rise in height as they proceed toward the west. The most eastern of these closed valleys is that of the lake called Shibkah el Lowdeah (properly Sabkhat al-Audiah, *i. e.* the salt morass of the valleys), the Tritonis of the antient geographers (the Lake of the Marks), which is separated from the Lesser Syrtis by a sandy tract of apparently no great elevation, and to the south east of which, at no great distance, are the Notusa or Nifzowah Mountains, the most eastern branch of the Atlas system. The lake is twenty miles long, and six broad; yet it is not altogether a collection of water, there being several dry tracts interspersed all over it, which look like so many islands. In the dry season the water entirely disappears, and the bottom of the lake is passed by the caravans, for the direction of which palm trunks are planted at certain distances, because the ground contains many dangerous pits and numerous quicksands. Hence it is called the Lake of Marks. The water of the lake is not inferior to the sea in saltness, and its low shores consist of sand, which, however, are partly covered by extensive groves of date-palms. It receives only a few torrents from the mountains, which inclose it on the north and south. The second close valley is that of the Melgigg, or the country called Zaab or Zeb. This is a narrow tract of land which extends from east to west through the middle of the territory of Algiers, and is watered by the river Wad Adje-dee, or correctly Wâdi-al Jedî, (the River of the Kid), which receives many small rivers originating in the mountains between the Zaab and the Tell, and falls into the lake of Melgigg, an extensive sheet of water in the rainy season, but in the dry months a plain covered with salt, containing many quicksands and pits. Along the banks of the Adje dee are numerous villages, surrounded by plantations of palm-trees, a fact which shows that this valley cannot be much elevated above the level of the sea. The third close valley is that of the Shatt (the Water), to the north-west of the western extremity of the preceding valley. It is a plain extending for many miles between two chains of rather high mountains, and, according to the season of the year, is either covered with salt or overflowed with water. Here, too, the quicksands are numerous and occasion no small danger to the unwary traveller. Five considerable streams empty themselves into the Shatt from the mountains to the north of it; but the country surrounding this lake is nearly an entire waste, and seems to be much more elevated than the Zaab.—So far our information is derived from the excellent work of Shaw. But this peculiar form of the surface seems to extend still farther to the west, and even to the high range of the Greater Atlas. Jackson, who doubtless had obtained this information from the natives, says, that proceeding eastward from the Kasci Farawan, or ruins of Pharao, which are situated to the north-east of Fas, at the foot of the western declivity of the Greater Atlas, the traveller immediately ascends the lofty Atlas, and on the third day reaches the extensive plains on the other side, which are totally destitute of vegetation, and through which a river flows that rises in the Atlas, and whose water receives a brackish taste by passing through the saline plains. After running a course of 450 miles (?) it is lost by absorption in the desert of Angad. This information concerning the least-explored part of the Atlas Mountains is rendered very doubtful by Jackson's unaccountably confounding this river with that of Tafilelt, which flows in quite a different direction towards the Sahara.

To the south of this extraordinary girdle of close valleys,

but still within the southern lower ranges of the Atlas system, lies a long valley without any water-course, which seems to extend up to the foot of the Greater Atlas. The greatest part of this valley is entirely unknown to us. Shaw has given some information on the eastern portion of it, called Wad-reag, in which Tuggurt and twenty-four other villages are situated, and of another branch of it, in which the town of Wurglah is found. No river traverses this country; but by digging wells to the depth of a hundred and sometimes two hundred fathoms, a plentiful stream is always found. Through different layers of sand and gravel a flaky stone-like slate is reached by the workmen, under which *the sea underground*, as it is called, lies concealed. No sooner is this stone broken through, than it is followed by a great rush of water. These seem to be such wells as are described by Olympiodorus. [See Artesian Wells.] The further continuation of this valley to the west up to the Atlas is entirely unknown to us, and its existence is only proved by the caravans, which depart from Fez and Marocco for Mecca, and choose this country for the usual road of their journeys; from which we may infer that no ranges of considerable height are encountered in these parts. Wurglah, Fiz Fighig, and Aksabi Surefa are named as the principal stations of the caravans in this valley. (Shaw's *Travels*; Jackson's *Account of Marocco*, and *Account of Timbuctoo and Housa*; Lieut. Washington, *in the Journal of the Geographical Society*, i. &c.)

The name *Atlas* first appears in the writings of the early Greeks, who were acquainted with the general fact of the existence of a mountainous region in the north-west portion of the African continent. But the Atlas of Herodotus (iv. 184) is rather a single mountain than a mass of mountains: 'it is of contracted dimensions, and circular; and said to be so high that it is not possible to see its summits, for the clouds never leave them either in winter or summer: the natives say this mountain is the pillar of heaven.' In these western regions the fables of the Greeks placed Atlas, the brother of Prometheus, bearing the heavens on his shoulders. (Æsch. *Prom.* 348.) From the name of this mountain-region came the name of the adjoining or Atlantic Ocean. The native name of these mountains, according to Pliny (v. i.) and Strabo, was Duris: the reader may see Shaw's speculations on this name in his *Travels*.

It does not appear that the antient geographers had a very complete knowledge of the Atlas; but still the Romans probably knew more about it than we yet do, having colonized many parts of the country which these mountains and their branches occupy. As far as we can collect, it was only the highest and western part, in the kingdom of Marocco, to which they applied the term Atlas; and they do not seem to have extended the name to the high lands to the east so far as we now do. The consul Suetonius Paulinus, who was contemporary with Pliny, was the first Roman commander who crossed the Atlas. His report of their great height agreed with all that had up to that time been said of them; he found the lower parts of the range covered with thick forests of lofty trees, and the summits with deep snow in the midst of summer.

The offset (πρόποους) of the Greater Atlas has been described as terminating at Ceuta, the *Septem Fratres*, or Seven Brothers, of Pliny and Strabo. The Greek geographer seems to make the Atlas mountains commence at Cotes, now Cape Spartel, and continue along the *Atlantic* side of the continent. (Compare Strabo, p. 825, and Pliny, v. i.) Pliny says that the Greeks gave the name of Ampelusia, the Vine Tract, to the headland which we now call Cape Spartel. Strabo gives no name to the mountain-range stretching eastward and in the interior from Cotes to the Syrtes; but he describes it, together with the ranges parallel to it, as inhabited first by the Maurusii or Moors, and in the interior by the Gætuli.

ATLAS, the first vertebra of the neck, so named because it sustains the globe of the head. It differs in several important circumstances from all the other vertebræ that enter into the composition of the spinal column; because it has distinct and peculiar offices to perform. It has to support the head, and to allow it the power of exercising two different kinds of motion, viz., a motion forwards and backwards, or that of flexion and extension; and a rotatory motion, or the power of describing a certain portion of a circle, as it does when it turns from side to side. These motions are accomplished by the peculiar mode in which the head is connected to the atlas, and the atlas to the second vertebra of the neck, the *vertebra dentata* or *axis*. The head is so united with the atlas as to form a perfect hinge joint, that is, a joint which admits of flexion and extension, or a motion forwards and backwards. The second vertebra, the dentata, forming a pivot on which the atlas turns, and therefore called axis, is united with the atlas in such a manner as to constitute a perfect rotation joint, or a joint which admits of a rotatory motion. The head being firmly connected with the atlas and carried round with it whenever the latter turns upon its axis, it is plain that by the combination of the two joints, namely, the hinge joint and the rotation joint, the head can be moved in every direction, forwards, backwards, and from side to side. In the construction of these joints, such is the perfection of the mechanism, that these combined motions are attained to the utmost extent and are performed with the greatest ease; the connexion of the different parts with each other forms a union of amazing strength and security; and at the same time certain organs of extreme delicacy and of vital importance are effectually guarded from injury. But the peculiar adaptations by which these objects are effected cannot be understood until the structure of the spinal column has been explained: we shall therefore postpone an account of the peculiar conformation of the atlas and axis until the spinal column is described. [See Spinal Column.]

ATLAS, a collection of Maps; so called probably in allusion to the mythological figure of Atlas represented as bearing the world upon his shoulders, symbolical of Mount Atlas.

Boucher, in his *Glossary*, says, the word seems to be derived from the German, in which language *atlass* means satin; because a collection of maps is usually made of a smooth satin paper.

ATMOSPHERE, from the Greek, ἀτμός, and σφαῖρα, *sphere of vapour*, is the whole body of air or other mixture of gases which envelopes a planet. We shall here devote ourselves exclusively to that which surrounds the earth, merely observing, that we have more or less reason to suppose atmospheres, in density comparable to that of the earth, enveloping the Sun, Venus, Mars, Jupiter, and Saturn; and none for the Moon. See these several names.

The subject of the atmosphere, treated in all its extent, would lead us much too far: we shall therefore confine ourselves to the description of its average state. We have already discussed the properties of its constituent material in the article Air, and we must further refer as follows, both for subjects which we cannot here enter upon, as well as for extensions of various points which must be incidentally mentioned.

For the general subject of the atmosphere, as connected with the weather, see Meteorology, Hygrometry, Temperature, and articles on particular subjects, such as Evaporation, Dew, Rain, Wind, Aurora Borealis, Heat, Electricity (Atmospheric), &c. &c.

For the atmosphere as a medium of communication (taking this word in its widest sense), see Acoustics, Aerodynamics, Balloon, Windmill, Sail. For its effects upon animal and vegetable life, see Respiration, Vegetation, Antiseptics, Decomposition. For the effects of the imponderable substances upon it, and *vice versâ*, see Heat, Electricity, Refraction. For instruments used to measure its state, see Barometer, Thermometer, Manometer, Eudiometer, Hygrometer; and for its uses in the investigation of the elevations of different parts of the earth, see Barometer, Heights (Measurement of).

The atmosphere, in its average state, must be considered as a body of air revolving with the earth. This gives its several strata an increasing velocity, as we recede from the earth's axis. For instance, at the equator, the air (if any) which is twice as distant from the centre of the earth as the surface, must revolve with twice the actual velocity of the air at the surface. This consideration shows positively that the atmosphere which really accompanies and revolves with the earth cannot certainly extend in the smallest quantity, above 20,000 miles from the surface. For at that height the tendency to recede from the centre, known by the name of centrifugal force, would counterbalance the weight, or tendency of particles towards the earth, and at higher distances would overcome it entirely.

But we are not therefore to conclude that there must be

air, more or less, *revolving with the earth* up to so great a height. Forty or fifty miles is supposed to be the limit which it attains. Previously, however, to entering upon this question, it is material to know whether we are to consider air as infinitely divisible or not. By which we mean, is it possible for air to be rarefied to any extent whatever, and still preserve its great characteristic, namely, mutual repulsion among its several parts? We might mention various arguments drawn from the ATOMIC THEORY, but Dr. Wollaston (*Phil. Trans.* 1822) has discussed this subject in a form which, while it adds some force to the atomic theory itself, for reasons unconnected with our subject, furnishes a very strong presumption for the finite extent of the atmosphere. The following is a synopsis of his argument.

If there be air throughout the universe, we are obliged to suppose that every planet would collect an atmosphere around itself, proportionate to its attracting power. In this case, we know that Jupiter, at whose surface the force of gravity must be much greater than at that of our earth, would collect a powerful atmosphere around him. The effect of the refraction of light through this atmosphere would become visible in the approach of the satellites to the planet, when they disappear behind his disc, and would cause a sensible retardation in their rate of approach. No such retardation can be observed in the smallest sensible degree; and, consequently, Jupiter has no such atmosphere, nor the means of collecting it: consequently, air, such as we have at the earth, is not diffused in any degree of rarefaction through the whole solar system. Dr. Wollaston argues that this finite character of the atmosphere is more conformable to the atomic theory than to that of the infinite divisibility of matter, since, in the first case, a boundary is possible, and will exist at the point where the weight of a single atom is as great as the repulsive force of the medium; while in the latter case it is difficult to see the possibility of any boundary.

It has lately been observed, that Encke's comet appears, in successive revolutions, to show in a slight degree the effect of some medium resisting its motion; and we believe the same thing has very lately been said of that of Biela. It might therefore appear that the preceding argument is weakened in force by this circumstance, or *vice versâ*, since the large planets might collect sensible atmospheres of the resisting fluid, whatever it be. But on this we must observe, that supposing the fact of the resisting medium to be established (and several astronomers are of that opinion), it by no means follows that it is common air, or any thing approaching to it in the proportion of its density to its elastic power. On the contrary, the facts observed with regard to the motion of the planets (which show no signs whatever of a resisting medium), and the extreme tenuity of the comets themselves (through which very faint stars may be seen), justify us in supposing that the resisting medium may be of a very high degree of elasticity as compared with air; and it is by no means improbable that the planets actually may have atmospheres of this same medium, not sensible to our instruments, on account of the very small increase of density which is sufficient to counterbalance the action of a planet. To elucidate this subject, see ELASTICITY, FLUID, (ELASTIC).

The preceding arguments go to show, that even supposing the temperature of the atmosphere to be uniform throughout, there is no inconsistency in the supposition of a finite atmosphere. But a very strong presumption in favour of such an hypothesis is derived from the rapid decrease of temperature which takes place as we recede from the surface of the earth. The law of this decrease is entirely unknown to us; at least we cannot even guess at the form it assumes in the higher regions of the mass of air. To this circumstance it is owing that all we can say upon those regions must be little more than speculation. Near the earth, even at great elevations above the level of the sea, we cannot say that observed temperatures correctly represent the law of the atmosphere: for example, we cannot say that the average temperature of Quito, which is more than 9000 feet above the sea-level, is the average temperature of the air 9000 feet above, *and over*, the sea. The only observation worthy of any confidence is that of Gay-Lussac, taken during his celebrated ascent, at a height of 6980 metres, or 7634 yards above the sea-level. The difference of temperature between air at the surface and at the height just mentioned was 40½° of the centigrade thermometer or nearly 72½° of Fahrenheit. This, if the decrease of temperature be uniform, gives a diminution of 1° of Fahrenheit for every 105 yards, or of 1° centigrade for every 173 metres of elevation.

The following table was deduced by Humboldt from various observations. It will serve to show how far the temperatures of elevated regions on the earth agrees with those of the same height in the atmosphere, as deduced from the preceding. The first column is the height of the land above the level of the sea (in metres); the second, the mean temperature (centigrade) at and near the equator; the third, the same in about 45° of latitude. The thermometer used is the centigrade; (+) means above, and (—) below, the freezing point.

Elevation in Metres.	Equator. Mean Temp. Centig.	Lat. 45°. Mean Temp. Centig.
0	+ 27° ·5	+ 12° ·0
974	+ 21° ·8	+ 5° ·0
1949	+ 18° ·4	— 0° ·2
2923	+ 14° ·3	— 4° ·8
3900	+ 7° ·0	
4872	+ 1° ·5	

From the preceding table, it appears that at the equator, on the average of 4872 metres, a rise of 187 metres gives a fall of 1° centigrade. But the fall is more rapid in the higher regions than in the lower. From 0 to 1949 metres of elevation, an elevation of 214m produces a fall of 1°; but from 2923m to 4872m, an elevation of 152m does the same.

The argument in favour of the finite extent of the atmosphere, derived from the preceding, is as follows. If we suppose an elevation of 200 yards to produce a fall of 1° of Fahrenheit's thermometer (which, as we have seen, is likely to fall short of the truth, that is, to give the higher regions of the atmosphere a higher temperature than they really have); it follows, that at a height of forty miles above the level of the sea, the temperature of the air must be 350° of Fahrenheit below that of the sea, or certainly more than 300° below the freezing point. There is the strongest reason to suppose that no gas we know of would preserve its gaseous state at this low temperature, but would become liquid: and though no gas has yet been rendered liquid by reduction of temperature, yet several have been reduced to that state by cold and pressure united.

If, then, we suppose the atmosphere of finite extent, its form must be nearly that of an oblate spheroid, the lesser axis passing through the poles of the earth: at the same time the action of the sun and moon must produce certain small *atmospheric tides;* and the tides of the sea, which are constantly disturbing the base on which the atmosphere rests, must produce periodical alterations of form in the latter also. If any such exist, sensibly, they may be detected by the barometer; for, *cæteris paribus*, any increase in the height of the superincumbent column of air must be accompanied by a small increase in the height of the counterbalancing column of mercury. Laplace was the first who examined this curious branch of the subject. He showed by analysis that the attraction of the sun and moon could produce no permanent effect upon the currents of the atmosphere; for instance, such as the trade-winds. He also showed that the diurnal oscillations caused by the above-mentioned attractions would only produce a very small effect upon the barometer—in fact, less than one millimetre, or 1-25th of an inch. The reduction of a large number of observations gave, at first, ·055 of a millimetre for the quantity in question; those of another set gave ·018; from which Laplace concluded, taking into account the smallness of the quantities, and the degree of probability which could be attached to results so different, that the *sensible* existence of the atmospheric tide was doubtful. In the meanwhile, however, the diurnal variation of the barometer has been completely established by observations made in several different places. But the law and quantity of this oscillation appears to vary so much with latitude, climate, and other circumstances, that no positive conclusion can yet be drawn, either to the exclusion of atmospheric *tide*, properly so called, or the adoption of any other cause in conjunction with it. Professor Forbes (*Report of British Association*, p. 230) has discussed all the observations, and has given a formula which represents them tolerably well.

The average pressure of the atmosphere is found to be the same, or very nearly so, at any one place from year to

year, notwithstanding the various temporary alterations arising from meteorological causes. But it is not yet accurately determined in a sufficient number of places to settle the question, whether it is the same at the level of the sea throughout the globe or not. Indeed, it is obvious that it must always be difficult to decide whether an observed difference in the mean height of the barometer at two places on land arises from difference of level, or from the atmosphere itself. The mean height of the barometer in London is stated at 29·88 inches; at Paris, where it has been determined with great accuracy, it is 756 millimetres, or 29·77 inches. The following tables (extracted from Pouillet, *Elémens de Physique*) give the best view of the state of the atmosphere at one place which has yet been offered to the public. They were made at Paris between the years 1816 and 1827. These heights are given in millimetres, 1000 of which make the metre of 39·37070 English inches, in which, however (though this is perhaps hardly worth notice), the metre is supposed to have the temperature of the freezing point, and the yard that of 62° Fahrenheit. The figures 75, when placed at the top, are common to all the column, and are to be prefixed to the whole number in each line; thus the average height of the barometer at Paris in a north-west wind is 758·67 millimetres. We have let the tables stand, as in the work cited, without attempting to correct some evident small misprints in the last figures.

ffect of the wind upon the height of the barometer.

Wind	No. of Observations	Height of Barometer at noon, 75
S.	682	2·98
S W.	727	2·38
W.	853	6·08
N.W.	335	8·67
N.	483	9·76
N.E.	378	9·89
E.	321	7·01
S.E.	231	4·60
Mean		6·42

2.—*Mean heights of the barometer for each year, from* 1816 *to* 1826, *at* 9 *in the morning*, 3 *in the afternoon, and* 9 *in the evening.*

Year.	Average Height of Barometer. 9 A.M. 75	3 P.M. 75	9 P.M. 75	Diff of 1st and 2nd columns	Diff of 2nd and 3rd columns.
1816	4·359	3·683	4·051	·676	·375
1817	6·676	5·914	6·510	·762	·597
1818	6·382	5·473	5·961	·909	·488
1819	5·343	4·581	4·993	·762	·412
1820	6·325	5·611	5·973	·714	·362
1821	6·276	5·598	6·068	·678	·470
1822	7·728	7·011	7·310	·717	·382
1823	5·197	4·493	1·773	·701	·280
1824	5·984	5·269	5·369	·715	·300
1825	7.966	7·122	7·221	·844	·102
1826	7·584	6·756	7·087	·828	·331
Mean	6·347	5.591	5·956	·756	·373

3.—*Mean heights of the barometer for each month of the year, from the mean of the years* 1816-1826, *at* 9 *in the morning*, 3 *in the afternoon, and* 9 *in the evening.*

1816–1827.	9 A.M. 75	3 P.M. 75	9 P.M. 75	Diff. of 1st and 2nd cols.	Diff of 2nd and 3rd cols.
Jan.	8·106	7·429	7·690	·677	·261
Feb.	8·165	7·236	7·557	·929	·321
March	6·203	5·406	5·823	·797	·500
April	5·253	4·243	4·780	1·010	·537
May	5·253	4·440	4·786	·813	·346
June	7·307	6·600	6·875	·707	·275
July	6·554	5·817	6·140	·737	·323
Aug.	6·807	5·953	6·271	·854	·318
Sept.	6·773	5·972	6·432	·801	·460
Oct.	4·772	4·021	4·522	·751	·501
Nov.	5·822	5·277	5·660	·545	·383
Dec.	5·152	4·703	4·950	·449	·247
Mean	6·347	5·591	5·950	·756	·373

As we advance higher in the atmosphere, the barometer falls; and the quantity of the fall is used to ascertain the height ascended. The method of doing this will be explained in the article HEIGHTS (MEASUREMENT OF); we notice it here in order to mention a circumstance which shows that our knowledge of the general conditions of the atmosphere has not been overstated. In order to construct the formula, it is necessary to take into account the diminution of the weight of the air, not only from its rarefaction but also from its increasing distance from the earth,—the variation of elastic force, as well from rarefaction as from change of temperature,—the alteration of density in the mercury itself, arising from the alteration of temperature,—and to use the formula in different latitudes, the variation of the force of gravity on the earth's surface. In our ignorance of the variation of the temperature, it is usual to allow to the whole column of air contained between the points of observation, the average temperature of its upper and lower extremities. This is the most doubtful part of the process; and as a verification, recourse is had to the comparison of heights measured by the barometer, and also by the processes of trigonometry. It is thus found that a co-efficient which, when deduced from theory alone, is 18337·46, appears from a number of heights measured trigonometrically to be 18336, differing from the former only by about its 18,000th part. This shows the effect of temperature to be sufficiently well taken into account, for such heights as we can measure, by the preceding supposition.

In the article AIR some reasons were shown for supposing that its component parts were not united chemically, but only mixed. This opinion, which is now almost universally adopted, has given rise to notions on the constitution of the atmosphere, differing entirely from those of all chemists down to the present day. A law is found to prevail in the mixture of gases and vapours, as universal as the one described in the article AIR, relative to the expansion arising from temperature namely, that two gases in a state of mixture exercise no influence one upon the other, except communication of temperature, but that each is disposed in exactly the same manner as it would be if the other were not present. Thus it is found, entirely contrary to all previous notions, that no pressure of dry air upon water exerts the least influence in preventing the formation of steam, which goes on exactly as if the space above were a vacuum, and continues until further evaporation is stopped by the pressure of the *steam already created*. It is found that no pressure of one gas can confine another in water; but that supposing a bottle partly full of water, the gas confined in the water will escape to the surface and distribute itself in precisely the same way as if the other gas were not present. By this it is not meant that the action commonly called mechanical cannot take place, or that a stream of hydrogen would not trouble the air; but only that the permanent settlement of one gas is not affected in any way by the presence of another, so long as no *chemical* action is excited. From this principle, Mr. Dalton (*Phil. Trans.* 1826), taking into consideration the presumptions which exist against the *chemical* union of the ingredients of the atmosphere, infers that the atmosphere does not consist altogether of the compound called air, but that the *nitrogen atmosphere* is higher than the *oxygen atmosphere*. In fact, if there be no chemical union, the above law of the mixture of gases requires us to allow that each is an atmosphere independent of the other, and that the two are most probably of unequal heights. From some considerations, into which we cannot here enter, Mr. Dalton thinks that the actual pressures exerted by the oxygen and nitrogen are in the proportions of the *volumes* occupied by them [see AIR], that is as 1 to 4; and concludes that the *oxygen atmosphere* extends to 38 miles in height, that of nitrogen to 54 miles, that of carbonic acid to 10 miles, and that of aqueous vapour to 50 miles. It must however be observed, that the state of the carbonic acid of the atmosphere is very variable; that there is not the same quantity by night as by day, in moist weather as in dry; and that the higher strata of the atmosphere contain more of it than the lower, which may arise from rapid absorption by the earth.

Against the hypothesis just described, it might perhaps be asserted that the air which Gay-Lussac brought down from a height of more than four miles was not found to differ from that of the earth's surface in the proportion of its oxygen to its nitrogen, which would be the case if the oxygen atmosphere diminished in density more than in proportion to the diminution of that of the nitrogen, or

vice versâ. We do not know whether the experiment of M. Gay-Lussac was made, or even intended to be made, with that degree of accuracy which would justify its being considered a test of Mr Dalton's theory; but in any case it is an experiment which it is very desirable to repeat.

The total quantity of the atmosphere (if the mean height of the barometer at Paris hold good for all other places) is a little less than the millionth part of the whole mass of the earth, supposing the mean density of the latter to be five and a half times that of water. (*Poisson, Mecanique*, 2d edit vol ii p 610)

For the colour of the atmosphere, see SKY. For the quantity of moisture contained in it, see HYGROMETRY

For the history of atmospherical researches, see the following names, HERO, CTESIBIUS, GALILEO, TORRICELLI, PASCAL, FLORENCE (Academy of), BOYLE, MARIOTTE, PRIESTLEY, SCHEELE, BLACK, LAVOISIER, CAVENDISH, &c.

The actual constitution of the atmosphere, whether composed of molecules exerting a repulsive force upon each other or not, must remain unsettled until some mathematical hypothesis can be found which shall satisfy all observed phenomena That probabilities are at present all on the side of the molecular or atomic hypothesis, is pretty generally admitted, and the repulsion of the several parts of air is a fact of every-day experience Newton entered upon this question, and shewed (*Principia*, book ii prop 23) that if the constitution of the atmosphere be atomic and if the force exerted by each particle extend only to those nearest to it, and be either nothing or inconsiderable as to all others, that then the observed proportionality of the elastic force to the density is consistent with no hypothesis except that of a repulsive force inversely proportional to the distances of the particles from each other, that is, which becomes double when the distance is halved, and so on But in the scholium to the same proposition he takes notice of the imperfection of the hypothesis and describes his theory as a mathematical 'handle' to induce philosophers to consider the subject further The molecular theory, on the supposition that every particle repels all the rest or, which is as likely to be the case has alternate spheres of attraction and repulsion, is beyond the reach of the present state of mathematical analysis.

For the state of atmospherical knowledge up to 1808, see Robertson, *General View of the Natural History of the Atmosphere*, Edinburgh, 1808 from thence to 1822, see Daniell's *Meteorological Essays*, London, 1822 and for an account of what has been lately done, with further references, see Professor Forbes's *Report on Meteorology*, in the *Reports of the British Association* London, 1833

ATMOSPHERIC AIR, a distinction which has been preserved after the necessity for it has ceased In the time of Priestley all gases were called *airs*, and common air was called atmospheric to distinguish it from *vital air*, now oxygen *inflammable air*, now hydrogen, &c [See AIR]

ATOLL, or ATOLLON, is a name given by the natives of the Maldives to the detached coral formations of which their Archipelago is composed They are commonly of a circular form (the reef seldom exceeding a mile in breadth), from fifteen to thirty miles in diameter, and rise perpendicularly from an unfathomable depth The openings which occasionally occur in these reefs afford passages for vessels and safe anchorage is found in many within the circumscribing wall the space thus included is often interspersed with islands The principal of these islands, however, are always situated on the outer reef, they abound in cocoa-nut trees, and are long and narrow In short they are of the same nature as the coral formations of the South Seas, though generally on a larger scale, the name Atoll is exclusively used among the Maldives

ATOM, or ATOMS (ἄτομοι), the ultimate and indivisible particles of matter, from a Greek compound, signifying *indivisible*. Anaxagoras, the preceptor of Socrates, who died in the year 428 B C, imagined the number of elements to be nearly if not absolutely infinite, and that the ultimate atoms composing every substance were of the same kind with that substance. [See ANAXAGORAS]

Leucippus, a philosopher of Abdera, who flourished soon after Anaxagoras, is generally regarded as the original propounder of what has been called the atomic philosophy. It was adopted by Democritus, in his *Cosmogony*, and afterwards by Epicurus, to whom its celebrity is chiefly owing The following account of this doctrine is copied from Dr. Good's *Book of Nature*, and is a clear and concise sketch of the theory contained in the writings of Epicurus and his followers:—

'The atomic philosophy of Epicurus, in its mere *physical* contemplation, allows of nothing but matter and space, which are equally infinite and unbounded, which have equally existed from all eternity, and from different combinations of which every visible form is created These elementary principles have no common property with each other: for whatever matter is, that space is the reverse of, and whatever space is, matter is the contrary to The actually solid parts of all bodies, therefore, are matter, their actual pores space; and the parts which are not altogether solid, but an intermixture of solidity and pore, are space and matter combined. Anterior to the formation of the universe, space and matter existed uncombined, or in their pure and elementary state Space, in its elementary state, is absolute and perfect void, matter, in its elementary state, consists of inconceivably minute seeds or atoms so small, that the corpuscules of vapour, light, and heat are compounds of them, and so solid, that they cannot possibly be broken or abraded by any concussion or violence whatever. The express figure of these primary atoms is various there are round, square pointed, jagged, as well as many other shapes. These shapes, however, are not diversified to infinity, but the atoms themselves of each existent shape are infinite or innumerable Every atom is possessed of certain intrinsic powers of motion Under the old school of Democritus, the perpetual motions hence produced were of two kinds a descending motion, from the natural gravity of the atoms, and a rebounding motion, from collision and mutual clash. Besides these two motions, and to explain certain phenomena to which they did not appear competent, and which were not accounted for under the old system, Epicurus supposed that some atoms were occasionally possessed of a third, by which, in some very small degree, they descended in an oblique or curvilinear direction, deviating from the common and right line anomalously and in this respect resembling the oscillations of the magnetic needle.

'These infinite groups of atoms flying through all time and space in different directions, and under different laws, have interchangeably tried and exhibited every possible mode of rencounter sometimes repelled from each other by concussion, and sometimes adhering to each other from their own jagged or pointed construction, or from the casual interstices which two or more connected atoms must produce, and which may be just adapted to those of other figures, as globular oval, or square Hence the origin of compound and visible bodies, hence the origin of large masses of matter, hence eventually, the origin of the world itself When these primary atoms are closely compacted, and but little vacuity or space lies between, they produce those kinds of substances which we denominate solids, as stones and metals, when they are loose and disjointed, and a large quantity of space or vacuity is interposed, they exhibit bodies of lax texture as wool, water, and vapour

'The world, thus generated, is perpetually sustained by the application of fresh tides of elementary atoms, flying, with inconceivable rapidity through all the infinity of space, invisible from their minuteness, and occupying the posts of those that are as perpetually flying off Yet nothing is eternal or immutable but these elementary seeds or atoms themselves The compound forms of matter are continually decomposing and dissolving into their original corpuscules; to this there is no exception minerals, vegetables, and animals, in this respect, are all alike, when they lose their present make, perishing for ever, and new combinations proceeding from the matter into which they dissolve. But the world itself is a compound though not an organized being, sustained and nourished, like organized beings, from the material pabulum that floats through the void of infinity. The world itself must, therefore, in the same manner perish it had a beginning, and it will have an end. Its present crasis will be decompounded; it will return to its original, its elementary atoms; and new worlds will arise from its destruction.

'Space is infinite, material atoms are infinite, but the world is not infinite This, then, is not the only world, nor the only material system that exists. The cause that has produced this visible system is competent to produce others: it has been acting perpetually from all eternity; and there are other worlds, and other systems of worlds, existing around us.'

During the most flourishing periods of the Greek philo-

sophy, this doctrine of matter consisting of an assemblage of indivisible particles seems to have kept its ground under various modifications; the idea of one elementary matter deriving its form and properties from the shape and union of the particles composing it, is a simplification of the doctrine of Anaxagoras.' (See Dr. Daubeny *on the Atomic Theory.*)

Without entering into an account of the opinions entertained by other philosophers on this abstruse subject, we shall conclude with the following from Sir Isaac Newton:—'All things considered, it seems probable, that God, in the beginning, formed matter in solid, massy, hard, impenetrable, moveable particles, of such sizes, figures, and with such other properties, and in such proportion to space, as most conduced to the end for which he formed them; and that these primitive particles, being solids, are incomparably harder than any porous bodies compounded of them; even so very hard as never to wear or break to pieces; no ordinary power being able to divide what God himself made one in the first creation.'

ATOMIC THEORY, in chemistry, sometimes termed the *doctrine of definite proportions.* This very important theory, founded on well-ascertained facts, has bestowed on modern chemistry an almost mathematical degree of precision. The hypothetical, which is to be distinguished from the experimental part of the subject, supposes that chemical compounds result from the combination of the ultimate atoms of their constituent parts. It has been determined by experiment, and the fact serves as the basis of the theory, that a compound body, when pure, always contains the same proportions of its constituents: thus calcareous spar, and the pure part of marble, chalk, and limestones, consist of carbonate of lime, composed of the same proportions of carbonic acid and lime; the carbonic acid always contains the same quantity of carbon and oxygen, and the lime the same proportions of calcium and oxygen. The same law also exists with regard to all similarly-constituted oxides, sulphurets, and salts, and indeed as to all chemical compounds whatever, whether presented to us by nature or formed by art: this is a simple statement of the fundamental facts upon which the superstructure of the atomic theory has been raised.

Before we proceed to detail the minutiæ of the theory, it will be proper to give a sketch, though a slight one, of the principal discoveries connected with the subject.

The earliest experiments which could have served as a basis for the atomic theory are those of Wenzel, a German chemist, who published, in 1777, a work *On the Affinities of Bodies*; the experiments detailed in it, though neglected at the time, are now acknowledged to possess a very considerable degree of accuracy. The author showed that when any two neutral salts decomposed each other, the resulting new compounds were exactly neutral. 'The very attempt,' remarks Dr. Thomson, 'to analyze the salts was an acknowledgment that bodies united with each other in definite proportions; and these definite proportions, had they been followed out, would have ultimately led to the doctrine of atoms.' (*History of Chemistry*, vol. ii. p. 278.)

With reference to this subject, it is observed by Sir H. Davy, that 'there may be found in the works of Dr. Bryan Higgins, Mr. William Higgins, and Professor Richter, hints or conclusions bearing directly on this doctrine. Dr. Bryan Higgins, in his *Experiments and Observations relating to Acetous Acid, fixable Air, dense inflammable Air, &c. &c.*, published in 1786, contends, that elastic fluids unite with each other in limited proportions only; and this depends upon the combination of their particles or atoms with the matter of fire which surrounds them as an atmosphere, and makes them repulsive of each other; and he distinguishes between simple elastic fluids, as composed of particles of the same kind, and compound elastic fluids, as consisting of two or more particles combined, in what he calls molecules, definite in quantity themselves, and surrounded by definite proportions of heat. Dr. Bryan Higgins's notions have, I believe, never been referred to by any of the writers on the atomic theory. Mr. William Higgins's claims have, on the contrary, often been brought forward. Yet, when it is recollected that this gentleman was a pupil and relation of Dr. Bryan Higgins, and that his work, called the *Comparative View*, was published some years after the treatises I have just quoted, and that his notions are almost identical (with the addition of this circumstance, that he mentions certain elastic fluids, such as the compounds of azote, consisting of one, two, three, four, and five particles of oxygen to one of azote), it is difficult not to allow the merits of prior conception, as well as of very ingenious illustration, to the elder writer.' (*Discourse before the Royal Society*, 1826.)

In justice, however, to Mr. Higgins, it must be admitted that his views were much more extended than those of Dr. Higgins; for it appears that he entertained precisely the same notion of the composition and atomic constitution of water as that now generally admitted, in this country at least. In his *Comparative View of the Phlogistic and Antiphlogistic Theories*, published in 1790, p. 37, he says, 'As two cubic inches of light inflammable air require but one of dephlogisticated air to condense them, we must suppose that they contain equal number of divisions, and that the difference of their specific gravity depends chiefly on the size of their ultimate particles; or we must suppose that the ultimate particles of light inflammable air require two or three, or more, of dephlogisticated air to saturate them. If this latter were the case, we might produce water in an intermediate state, as well as the vitriolic or the nitrous acid, which appears to be impossible; for in whatever proportion we mix our airs, or under whatsoever circumstances we combine them, the result is invariably the same. This likewise may be observed with respect to the decomposition of water. Hence we may justly conclude, that water is composed of molecules formed by the union of a single particle of dephlogisticated air to an ultimate particle of light inflammable air, and that they are incapable of uniting to a third particle of either of their constituent principles.'

It is a remarkable circumstance, that although Mr. Higgins's view of the atomic constitution of the five compounds of oxygen and azote is that which is even now very commonly admitted, he does not state their composition; and his idea of the comparative atomic constitution of sulphurous and sulphuric acids is decidedly erroneous. 'Indeed,' as remarked by Sir H. Davy in the discourses above quoted, 'neither of the Higginses attempted to express the quantities in which bodies combine by numbers.'

In 1792, Richter, a Prussian chemist, published a work called *Elements of Stochiometrie; or the Mathematics of the Chemical Elements.* This author treated the subject almost in the same way as Wenzel had previously done, but extended it very considerably; he endeavoured to determine the capacity of saturation of each acid and base, and to indicate by numbers the weights which mutually saturate each other. He published a table of these, but though the attempt was new and exceedingly ingenious, the results were far from accurate.

The discoveries of Proust, a French chemist who was professor of chemistry at Madrid, are well worthy of notice, he being the first person who attempted an accurate analysis of metallic oxides. He found that metals unite only with determinate proportions of oxygen, and that the same law existed with sulphur and the metals, and that these might be stated in numbers: his opinions were strenuously opposed by Berthollet, but their accuracy is now generally admitted.

In the year 1803, Mr. (now Dr.) Dalton, of Manchester, communicated to the Literary and Philosophical Society of Manchester an essay containing an outline of his speculations on the subject of the composition of bodies (*Manchester Memoirs*, second series, vol. i. p. 286). The following year he explained his notions on the subject to Dr. Thomson, and in 1808 he published the first volume of his *New System of Chemical Philosophy*, in which he gave an outline of his views of the constitution of matter, and this without any acquaintance with what had been previously done on the subject by Higgins.

Dr. Dalton was unquestionably the first who laid down, clearly and numerically, the doctrine of multiples, and endeavoured to express by simple numbers the weights of bodies believed to be elementary. He announced it as a general rule, that 'when only one combination of two bodies can be obtained, it must be presumed to be a *binary* one, unless some cause appear to the contrary.' Consistently with this law, and correctly at the time it was written, Dr. Dalton regarded water as a binary compound of hydrogen and oxygen, and the relative weights, since corrected, are considered as one to eight. As, then, water consists of an atom of hydrogen and an atom of oxygen, either of these elements may be selected as unity, and, in fact, as we shall hereafter notice, both have been occasionally employed as such. Dalton fixed on hydrogen, because it is that body which unites with others in the smallest proportion: thus,

then, we have water composed of one of hydrogen by weight, or one atom, and eight of oxygen by weight, or one atom, and in all cases an atom of hydrogen being represented by 1, an atom of oxygen will be represented by 8; and these being the atomic weight of the elements, that of the compound will be obtained by adding them together, thus—

Hydrogen	1 atom	= 1
Oxygen	1 atom	= 8
Water	1 atom	= 9

The weight, then, of a compound atom is obtained by adding together the atomic weights of its constituents. Although many elementary bodies unite with hydrogen, there are some which do not, but there is no one which does not combine either with hydrogen or with oxygen: when, therefore, the hydrogen standard or unit fails on this account, we may refer to the atom of oxygen, and determine what weight of the substance in question, supposing only one compound to be formed, unites with eight parts by weight, or one atom of oxygen. Now cadmium is a metal of this description; it forms no compound with hydrogen, and only one with oxygen, and as eight parts of this element unite with fifty-six of the metal, to form the only known oxide of it, we say that the atomic weight of cadmium is fifty-six, and that the oxide is composed of

Oxygen . . .	1 atom	= 8
Cadmium . . .	1 atom	= 56
Oxide of cadmium	1 atom	= 64

It is, however, possible, though by no means probable, that such an inference may be incorrect, for the oxide in question may be composed either of two or more atoms of oxygen united with one atom of the metal, or the contrary, instead of what it is presumed to be; but the error may be detected by examining the proportion in which the metal unites with other elements, whose atomic weights are already determined. The atomic weights of sulphur, chlorine, and selenium, are respectively 16, 36, and 40: now if, in a series of combinations with these substances, the compounds containing the largest proportion of metal were constituted of

Sulphur 16	Chlorine 36	Selenium 40
Metal 56	Metal 56	Metal 56

we should then conclude, as these agree with the composition of the oxide, as above given, that 56 is the atomic weight of the metal. But if it was found that the compounds in question containing the largest proportion of metal were constituted of

Sulphur 16	Chlorine 36	Selenium 40
Metal 112	Metal 112	Metal 112

we should conclude that the atomic weight of the metal was 112, and consequently that the oxide formed of 8 oxygen and 56 metal, was a peroxide, equivalent to 16 = 2 atoms of oxygen + 112 = 1 atom of metal.

If, on the other hand, it appeared that the compound containing the largest proportion of metal consisted of

Sulphur 16	Chlorine 36	Selenium 40
Metal 28	Metal 28	Metal 28

we must then consider the oxide composed of 8 oxygen and 56 metal as a *suboxide*, constituted of 1 atom of oxygen = 8 + 2 atoms of metal = 56.

This method of proceeding is according to the rule thus laid down by Dr. Dalton: 'It is necessary not only to consider the combinations of A with B, but also those of A with C D E, &c., as well as those of B with C D, &c., before we can have good reason to be satisfied with our determination as to the number of atoms which enter into the various compounds.' (*New System of Chemical Philosophy*, vol. ii. p. 300.)

In fact, the protoxide of a metal, *i. e.* 1 atom oxygen + 1 atom metal, may possess such properties as to prevent its composition from being by direct means accurately ascertained; and it is likewise possible that no protoxide may exist.

We have alluded to the circumstance, that various compounds of the same two elements may exist, and supposing an elementary body, as copper or silver, united with two proportions of oxygen, various questions may arise as to the constitution of the resulting oxides: as, whether that which contains least oxygen is a suboxide or protoxide; or whether that which contains most is a protoxide or a peroxide. These are points which can be determined only by comparison: for example, with respect to oxygen and copper, that oxide which contains least oxygen consists of 8 oxygen + 64 metal; that which contains most, of 16 oxygen + 64 metal: now, in this case, we consider that which contains *least* oxygen as composed of 1 atom of each of its elements, and that which contains *most* oxygen as formed of 2 atoms of oxygen + 1 atom of copper—thus

Oxygen 1 atom	= 8	Oxygen 2 atoms	= 16
Copper 1 atom	= 64	Copper 1 atom	= 64
Protoxide of cop. 1 atom	= 72	Peroxide of cop. 1 atom	= 80

This rule of assuming that oxide to be a protoxide which contains least oxygen will be generally found correct, especially when confirmed, as it is in this instance, by the corresponding constitution of the two chlorides and two sulphurets. The oxides of silver, however, form an exception, though a very rare one, to this rule; there are two oxides of this metal composed of

Oxygen 8	and	Oxygen 8
Silver 165		Silver 110

If it were to be assumed in this case, that 165 is the atomic weight of silver, because it is the largest proportion which combines with 8, or 1 atom of oxygen, the assumption would be erroneous, for this oxide has no corresponding chloride, sulphuret, &c., and it would be unlike other protoxides, in forming no compound with any acid. But all these properties belong to the oxide of silver composed of 8 oxygen and 110 silver; in this case the oxide containing most metal is considered as a suboxide, composed of 2 atoms oxygen 16 + 3 atoms silver 330. In general, however, the rule may be relied upon, that the metallic oxide which contains least oxygen is the protoxide, and that weight of the metal which combines with 8 by weight of oxygen, denotes the weight of its atom, and their united weight that of the oxide.

It will be observed with respect to the compounds of oxygen and copper, that the second portion of that element which unites with the same quantity of the metal, is double the first. Now upon this and numerous similar facts is founded one of the most important and beautiful peculiarities of Dr. Dalton's theory, sometimes described as the *doctrine of multiples*. In the case just alluded to, the second portion of oxygen is precisely double the first; but there are some cases in which the greater proportions are not multiples of the less, by any entire number: for example, there are two well-known oxides of iron consisting of

Oxygen 8	Oxygen 12
Iron 28	Iron 28

The first of these is the protoxide, and the second the peroxide; but it will be observed, the second portion of oxygen is only one-half greater than the first, instead of double, as happens with respect to copper. In fact, the additional quantity is equal to only half an atom of oxygen: but as the idea of dividing an atom is absurd, the difficulty is overcome by multiplying both the oxygen and iron by 2, in which case we shall have 12 × 2 = 24, or 3 atoms of oxygen, combined with 28 × 2 = 56, 2 atoms of iron, and these proportions are perfectly consistent with the theory.

Other cases of apparent anomaly occur: thus there are three oxides of lead, viz.,

Protoxide.	Red oxide.	Peroxide.
Oxygen 8	Oxygen 10.66, &c.	Oxygen 16
Lead 104	Lead 104	Lead 104

The first and last of these oxides are constituted exactly as the oxides of copper are, the second portion of oxygen being double that of the first; but the red oxide of lead is composed of an atom of metal and such a quantity of oxygen as is equal to one atom and a third. If, then, both the oxygen and metal be multiplied by 3, we shall have a compound of 4 atoms of oxygen and 3 atoms of lead, or 32 + 312 = 344, and it is found if these 344 parts of red lead be treated with dilute nitric acid, they are separated into 2 atoms of protoxide = 224, which are dissolved; and 1 atom of peroxide = 120, which remains unacted upon in the state of a brown powder. This case, then, of apparent anomaly is explained by showing that the red oxide of lead is equivalent to, or perhaps composed of, the other two oxides, and is resolvable into them.

The oxides of manganese offer a still more remarkable case of apparent irregularity of combination, and of the disposition of metallic oxides themselves to combine in definite proportions. There are five oxides of this metal, all of

which are resolvable into the protoxide and peroxide by the action of dilute sulphuric acid.

While on the subject of multiples, it will be proper to adduce one of the most remarkable and regular series of them presented to us. There are five compounds of oxygen and azote, viz.

	Oxygen.		Azote.	
Nitrous oxide, composed of	8 = 1 atom	+	14 = 1 atom.	
Nitric oxide	16 = 2 atoms	+	14	do.
Hyponitrous acid	24 = 3	+	14	do.
Nitrous acid	32 = 4	+	14	do.
Nitric acid	40 = 5	+	14	do.

In these compounds, it will be observed, to form a new compound, 1 atom of oxygen is in every case added to the preceding quantity, and the atoms of oxygen combined with 1 atom of azote are 1, 2, 3, 4 and 5.

While in some cases the hydrogen and in others the oxygen standard is assumed, there are others in which they may be employed indifferently: thus, of carbon 6 parts by weight is the largest quantity which combines either with 1 part by weight of hydrogen, or 1 atom, or with 8 parts by weight of oxygen, or 1 atom; 6 is therefore the atomic weight of carbon. But with sulphur the case is different; 32 is the largest portion that combines with 1 of hydrogen, but 16 is the greatest quantity that unites with 8 of oxygen: now the latter, or 16, is assumed as its atomic weight, for were 32 taken, as indicated by the hydrogen unit, we should have no compound of 1 atom oxygen + 1 atom sulphur, which would occasion much more inconvenience than results from the alternative of having a subhydruret of sulphur, or, which is the same, a bisulphuret of hydrogen.

With respect to azote also, the atomic weight is fixed at 14, that being the largest quantity which combines with 8 of oxygen. There is only one compound of hydrogen and azote, viz., ammonia; this consists of 3 parts by weight of hydrogen and 14 by weight of azote; consequently, if we had taken the hydrogen standard, the atomic weight of azote would have been $\frac{14}{3} = 4 \cdot 66$, which would have greatly complicated the constitution of the compounds of oxygen and azote; but the alternative of supposing ammonia to contain 3 atoms of hydrogen instead of 1 atom is of secondary importance, though it must be admitted that it contravenes the rule laid down by Dr. Dalton, that 'when only one combination of two bodies can be obtained, it must be presumed to be a binary one.'

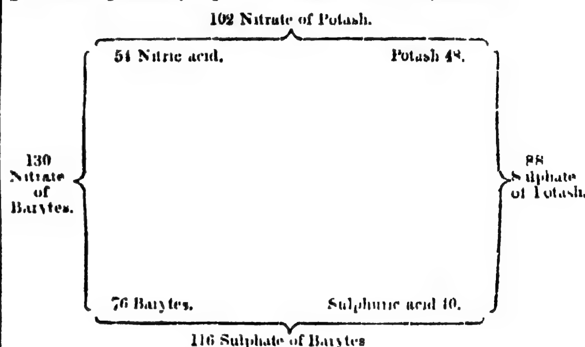
The case in which the second portion of oxygen in an oxide, instead of being equal to the first, is only one-half greater, has been pointed out in the instance of the oxides of iron, and the means by which the absurdity of supposing the existence of half an atom is obviated have been mentioned. There are, however, some cases, in which it is convenient to consider such an oxide as containing an atom and a half of oxygen, and it is then termed a *sesquioxide;* there are also several instances in which salts are commonly considered as containing a quantity of acid equal to an atom and a half, and these are termed *sesquisalts.* The alkalies ammonia, potash, and soda, and some other bases, form three compounds with the same acid: for example, we have

Carbonate of potash, composed of	1 atom acid + 1 atom base
Bicarbonate of potash,	2 atoms acid + 1 atom do.
and a carbonate of potash,	3 atoms acid + 2 atoms do.

It is then evident that the last salt is equivalent to a compound of 1½ atom acid + 1 atom base. Now if an atom of this salt, considered as a sesquisalt, be added to an atom of nitrate of lime, double decomposition ensues, 1 atom of neutral nitrate of potash remains in solution, 1 atom of neutral carbonate of lime is precipitated, and carbonic acid equal to half an atom is expelled in the state of gas. With respect to its *base* then, sesquicarbonate of potash may be regarded as a neutral carbonate, though, as to its acid, as a sesquicarbonate; for if lime-water be added to an atom of a sesquicarbonate, carbonate of lime is precipitated equivalent in quantity to 1½ atom.

These facts are sufficient to shew that *combining* and *atomic* weights are not convertible terms, though they have been so employed. Thus the atomic weight of an anhydrous compound of 3 atoms carbonic acid and 2 atoms potash, is 162; considered as a sesquicarbonate, its atomic weight is 81; and its combining weight is the same, with respect to an atom of nitric acid; but it is one-half greater as regards an atom of lime. The same remark will apply to bisalts: they must also be considered as having one combining weight for their acids and another for their bases.

It may now be easily made to appear how it happens that when two neutral salts decompose each other, the new salts obtained by the operation are also neutral; an atom of nitric acid weighs 54, and one of barytes 76, forming when combined 130 of neutral nitrate of barytes; 88 = an atom of neutral sulphate of potash is composed of an atom of sulphuric acid = 40, and an atom of potash = 48. Now when 130, or an atom of nitrate of barytes, dissolved in water, is mixed with a solution of 88, or an atom, of sulphate of potash, double decomposition ensues, and two new and perfectly neutral salts are formed, viz., 1 atom of nitrate of potash = 102, consisting of an atom of nitric acid = 54, and an atom of potash = 48; this remains in solution; and there is precipitated an atom of neutral sulphate of barytes = 116, composed of 1 atom of sulphuric acid = 40, and 1 atom of barytes = 76. The annexed diagram will show the constitution of the salts employed, and those formed by their mutual decomposition; and it will be seen also that the weight of the new compounds is precisely equal to those of the original salts.



Although the atomic theory, thus developed by Dr. Dalton in 1808, contained truths of the highest importance, quite independent of the hypothesis by which they were illustrated, it was not until after the appearance of Dr. Wollaston's Memoirs, *On Super-acid and Sub-acid Salts*, and *On a Synoptic Scale of Chemical Equivalents*, that chemists were fully impressed with the practical applications of which the theory was susceptible. In the first memoir (*Phil. Trans.* 1808), a memoir equally remarkable for its conciseness and clearness, Dr. Wollaston shows, that Dr. Dalton's theory, first applied to determining the constitution of gaseous bodies, is applicable to that of super-acid and sub-acid salts; and he proves that sub-carbonate of potash contains exactly half the quantity of carbonic acid existing in the super-carbonate, by showing that if the latter be heated it loses half its acid, and is reduced to the state of sub-carbonate by the loss; the same rule was found to exist with the sub-carbonate and super-carbonate of soda, the sulphate and super-sulphate of potash, and with three oxalates of potash.

The paper on the *synoptic scale* appeared in the *Phil. Trans.* for 1814. By this instrument the practical utility of the doctrine of definite proportions was most satisfactorily pointed out.

This instrument consists of a moveable scale of numbers on the principle of Gunter's scale, so that any number can be placed opposite the names of a series of substances in adjoining columns, arranged in the order of their combining weights, in such a manner that the number denoting the combining weight of a body being placed opposite to its name—10, for example, opposite to oxygen—the numbers expressing the combining quantities of others will appear opposite to their names; thus copper will be found opposite to 40, showing that this quantity of it combines with 10 of oxygen, and opposite to 50 will be found oxide of copper. By mere inspection, a great number of important results are obtained. If the composition of a substance with regard to the proportion of its elements is to be determined, the slider is to be so placed that the number 100, or any required number, is opposite to its name, and the respective quantities of the ingredients will be found opposite to their names, and the quantities of other compounds required to decompose them: for example, when 86 is placed opposite to sub-carbonate of potash, 27·5 will be opposite to carbonic acid, 59·1 to potash, 61·3 to oil of vitriol, 50 to dry sulphuric acid, and 11·3 to water.—

Now it is well known that sub-carbonate of potash is decomposed by sulphuric acid, and on further inspecting the scale, it will be observed that sulphate of potash, the newly-formed salt, is opposite to 109 1 showing the quantity formed by the union of 50 of dry sulphuric acid and 59 1 of potash, while 27 5 of carbonic acid are expelled, and 11·3 of water are set free This simple example is sufficient to show the very extensive use which, by mere inspection, may be made of this instrument in exhibiting the constitution of various oxides, acids, and salts, and of the quantities of substances required to form or decompose compound bodies

In the year 1808, Berzelius, in consequence of a perusal of Richter's work already alluded to, undertook an investigation of the numerical proportions in which different bodies combine so as neutralize each other, these investigations were accompanied by a series of analyses which for number and accuracy have probably never been equalled As the results of these labours, he laid down certain laws relative to chemical combinations, which, however, are in general, and when correct, only to be considered as corollaries from those determined by Dalton Within a few years, a curious discovery has been made with respect to the atomic constitution of some substances viz such as are composed of precisely the same elements and in the same proportion, but which possess very different properties,* they are termed *isomeric* bodies the two compounds of hydrogen and phosphorus, oil of wine and light liquid hydro carbon, tartaric and paratartaric acids, are among the more remarkable instances of this similarity of composition and dissimilarity of properties It is, however extremely probable that most bodies so constituted though they contain the same relative, do not contain the same absolute number of atoms of the same elements on this supposition the atomic weights will differ though they have been supposed to be similar and the different arrangement of similar atoms in consequence of their increased number, may be such as to occasion the difference of properties observed

Having now considered that part of the subject which relates to the laws by which solid bodies enter into atomic combination it will be necessary to notice the very important laws which M Gay Lussac discovered with respect to the combination of gaseous bodies The memoir containing what has been termed the *Theory of Volumes* is in vol ii p 207 of the *Mémoires d'Arcueil* 1809, and is entitled *Sur la Combinaison des Substances Gazeuses* &c The author suspecting, from the previously ascertained fact that 100 volumes of oxygen gas combine with 200 volumes of hydrogen gas to form water, that other gaseous bodies would be found to unite in simple proportions he prepared muriatic carbonic, and fluoboric acid gases, and combined them with ammoniacal gas, and he found that they united in the following proportions —

100	volumes of	muriatic acid gas	with	100	of ammoniacal gas
100	,,	carbonic acid gas		100	,,
100	,,	,,		200	,,
100	,,	fluoboric acid gas		100	,,
100	,,	,,		200	,,

The series of compounds, however, which most remarkably illustrate the fact that gaseous substances unite in the simple ratio of 1 to 1, 1 to 2, 1 to 3, &c , are those of oxygen and azote, already mentioned with other views, thus

	By Volume		By Weight	
	Azote	Oxygen	Azote	Oxygen
Nitrous oxide	2	1	14	8
Nitric oxide	2	2	14	16
Hyponitrous acid	2	3	14	24
Nitrous acid	2	4	14	32
Nitric acid	2	5	14	40

The same rule was found also to apply to the combination of vapours with gases, thus.—

100	vols of	hydrogen gas with	100	vols. of	vapour of sulphur.
100	,,	oxygen ,,	100	,,	,,
100	,,	hydrogen ,,	100	,,	iodine.

Indeed, chemists have ventured, on the strength of the last mentioned facts, to estimate the weight of the vapour of bodies which have never yet, like sulphur and iodine, been separately vaporized: thus, light carburetted hydrogen gas is presumed to be composed of two volumes of hydrogen gas, and one volume of the vapour of carbon; and so with all other gaseous compounds of carbon

Dr Turner (*Elements of Chemistry*, p. 204) has well observed, that the simple ratio in which volumes combine 'is peculiarly interesting, because it appears to indicate a close correspondence in the size of the atoms of gaseous bodies It naturally suggests the idea that this peculiarity may arise from the atoms of elementary principles possessing the same magnitude. On this supposition, equal measures of such substances in the gaseous form, at the same temperature and pressure, would probably contain an equal number of atoms; and the specific gravity of these gases would depend on the relative weight of their atoms The same numbers which indicate the specific gravity of elementary principles in the gaseous state would then express the relative weight of their atoms, so that the latter would be ascertained by means of the former, or the atomic weight of a solid or liquid represent the specific gravity of its vapour The proportional numbers adopted by Sir H Davy in his *Elements of Chemical Philosophy*, and the atomic weights employed by Berzelius in his *System of Chemistry*, were selected in accordance with this view Thus, water, being formed of two measures of hydrogen and one measure of oxygen is believed by Berzelius to consist of two atoms of the former, and one atom of the latter and, for a similar reason, he regards protoxide of nitrogen as a compound of two atoms of nitrogen and one atom of oxygen. The atoms and volumes of the four elementary gases oxygen, chlorine, hydrogen, and nitrogen—are thus made to coincide with each other This method, though perhaps preferable to any other has not hitherto been generally followed Most chemists consider water protoxide of chlorine, and protoxide of nitrogen as containing each one atom of their elements and consequently as these compounds consist of one measure of oxygen united with two measures of the other constituent the atom of hydrogen, chlorine, and nitrogen is supposed to occupy twice as much space as an atom of oxygen An atom of oxygen is therefore represented by half a volume and an atom of the other three gases by a whole volume

In 1815 Dr Prout published, in the sixth volume of the *Annals of Philosophy* a paper 'On the Relation between the Specific Gravities of Bodies in their Gaseous States and the Weights of their Atoms The observations offered in this memoir are professedly founded on the doctrine of volumes just described The author shows that if atmospheric air be a compound of 20 volumes of oxygen and 80 of azotic gas and their equivalents 8 and 14 then the specific gravities of these gases are oxygen, 1 1111 azote 0 9722 He shows also that the specific gravity of hydrogen gas is 0 694 that if we reckon the atomic weight of hydrogen 0 125, that of oxygen is unity He also observed, that the atomic weights of bodies appear to be multiples of the atomic weight of hydrogen by a whole number It was remarked by him that in general the specific gravity of the body in a gaseous state may be obtained by multiplying its atomic weight by 0 5555, or half the specific gravity of oxygen gas because the atom of oxygen is represented by half a volume, but that of most other substances by a whole volume

Dr Thomson (*Attempt to establish the First Principles of Chemistry by Experiment*, vol i, p 26), fully adopting Dr Prout's views on this subject, says—'Every substance, of which I could procure a sufficient quantity to enable me to examine it fully, has been not only a multiple of the atomic weight of hydrogen, but, if we except a few compounds into which a single or odd atom of hydrogen enters, they are all multiples of 0 25, or of two atoms of hydrogen

By merely inspecting the table of atoms which we shall presently give it will be evident that such a law would afford great facilities, as all fractional numbers would be avoided, hydrogen being reckoned unity In this country the idea has been pretty generally adopted, and in this memoir such numbers have been used for illustration It must, however, be confessed, that the experiments of Berzelius, confirmed as they have been by the researches of Dr. Turner, have thrown, to say the least, very great doubts on the accuracy of the general proposition made by Dr Prout and maintained by Dr Thomson.

The late experiments of Mitscherlich, on the *relation of the density of gases to their atomic weights*, tend also to prove that the doctrine of Prout cannot be safely admitted. (*An. de Ch. et de Ph.* lv, 5.)

* That such compounds exist, was, we believe, first inferred by an anonymous author from some experiments of Dr Henry on the compounds of carbon and hydrogen. See *Annals of Philosophy*, N. S. vol iii p 37.

Before giving a table of the atomic weights of elementary bodies, it will be proper to state the nature and weight of the standard from which they are reckoned, and the different terms employed to designate what—adopting the language of Dr. Dalton—we have described as an atom.

STANDARDS.

Dr. Dalton,	*atom,*	hydrogen	1	oxygen	7
Dr. Wollaston,	*equivalent,*	oxygen	10	hydrogen	1·32
Sir H. Davy,	*proportion,*	hydrogen	2	oxygen	15
Dr. Thomson,	*atom,*	oxygen	1	hydrogen	1·25
Berzelius,	*atom,*	oxygen	100	hydrogen	12 1795
Dr. Henry,	*atom,*	hydrogen	1	oxygen	8
Dr. Turner,	*equivalent,*	hydrogen	1	oxygen	8
Mr. Faraday,	*proportional,*	hydrogen	1	oxygen	8
Mr. Brande,	*proportional,*	hydrogen	1	oxygen	8

The method of mutually converting the numbers of each standard into those of the other is too obvious to require explanation.

The use of the term *atom* has been objected to as hypothetical, because it is said that we have no means of ascertaining or judging of the weight or magnitude of an atom of any element, and that any supposed relative weight of their atoms must therefore be a mere hypothetical assumption, from which no satisfactory conclusion can be drawn: and by those who appear to entertain this opinion, other terms, as above quoted, are substituted for the word atom, which is, however, intended to express merely the smallest division which is found of any element without decomposition.

The following remarks by Dr. Wollaston, in his memoir on the finite extent of the atmosphere (*Phil. Trans.* 1822), are strongly in favour of the atomic constitution of matter. 'Now, though we have not the means of ascertaining the extent of our own atmosphere, those of other planetary bodies are nevertheless objects for astronomical investigation; and it may be deserving of consideration, whether, in any instance, a deficiency of such matter can be proved, and whether, from this source, any conclusive argument can be drawn in favour of ultimate atoms of matter in general. For, since the law of definite proportions discovered by chemists is the same for all kinds of matter, whether solid, or fluid, or elastic, if it can be ascertained that any one body consists of particles no longer divisible, we can then scarcely doubt that all other bodies are similarly constituted; and we may without hesitation conclude, that those equivalent quantities, which we have learned to appreciate by proportionate numbers, do really express the relative weights of elementary atoms, the ultimate objects of chemical research.'

Table of the Atomic Weights of Elementary Bodies

	DR. THOMSON.		BERZELIUS.	
	Oxygen = 1	Hydrogen = 1	Oxygen = 100	Hydrogen = 1
Hydrogen	0·125	1	12·4795	1·000
Carbon	0·75	6	76·438	6·125
Lithium	0·75	6	80·375	6·440
Oxygen	1	8	100	8·013
Boron	1	8	136·204	10·914
Silicon	1	8	277·312	22·221
Aluminum	1·25	10	171·166	13·716
Magnesium	1·5	12	158·352	12·689
Azote	1·75	14	88·518	7·093
Phosphorus	2	16	196·143	15·717
Sulphur	2	16	201·165	16·120
Fluorine	2·25	18	116·900	9·367
Glucinum	2·25	18	331·261	26·544
Calcium	2·5	20	256·019	20·515
Zirconium	2·75	22	420·201	33·671
Sodium	3	24	290·897	23·310
Titanium	3·25	26	303·662	24·332
Nickel	3·25	26	369·675	29·622
Cobalt	3·25	26	368·991	29·568
Iron	3·5	28	339·205	27·181
Manganese	3·5	28	345·887	27·716
Copper	4	32	395·695	31·707
Tellurium	4	32	806·452	64·622
Chromium	4	32	351·815	28·191
Zinc	4·25	34	403·226	32·311
Chlorine	4·5	36	221·326	17·735
Yttrium	4·5	36	402·514	32·254
Arsenic	4·75	38	470·042	37·665
Potassium	5	40	489·916	39·257
Selenium	5	40	494·583	39·631
Strontium	5·5	44	547·285	43·854
Molybdenum	6	48	598·520	47·960
Cerium	6·25	50	574·696	46·051
Palladium	6·75	54	665·899	53·359
Rhodium	6·75	54	651·387	52·196
Cadmium	7	56	696·767	55·833
Tin	7·25	58	735·294	58·920
Thorium	7·5	60	844·900	67·701
Antimony	8	64	806·452	64·622
Vanadium	·	·	855·810	68·578
Barium	8·5	68	856·880	68·663
Bismuth	9	72	1330·377	106·604
Bromine	10	80	489·153	39·196
Platinum	12	96	1233·499	98·841
Iridium	12·25	98	1233·499	98·841
Mercury	12·5	100	1265·823	101·431
Gold	12·5	100	1243·013	99·601
Tungsten	12·5	100	1183·000	94·795
Osmium	12·5	100	1244·487	99·722
Lead	13	104	1294·498	103·729
Silver	13·75	110	1351·607	108·305
Iodine	15·75	126	789·750	63·283
Columbium	22·75	182	1153·715	92·448
Uranium	26	208	2711·358	217·263

It is to be observed, that it is not ponderable matter only which appears to obey the law of definite proportions, Dulong and Petit have inferred from their experiments (*An. de Ch. et de Ph.*, vol. x.) that the atoms of simple substances have the same capacity for heat. Dr. Dalton has, however, objected to this opinion, that the product of the weight of an atom by the corresponding capacity for heat is not a constant quantity; because the capacity of the same substance varies with change of form, or with variation of temperature without change of form. Added to which the weights of the atoms, as indicated by the specific heat, would be very materially different from those now adopted in many cases.

The late beautiful experiments of Mr. Faraday on the absolute quantity of electricity associated with the particles or atoms of matter, prove that, for a given definite quantity of electricity passed, an equally definite and constant quantity of water or other matter is decomposed: and he concludes also, that the electricity which decomposes, and that which is evolved by the decomposition of, a certain quantity of matter, are alike. 'The harmony,' he observes, 'which this theory of the definite evolution and the equivalent definite action of electricity introduces into the associated theories of definite proportions and electro chemical affinity, is very great. According to it, the equivalent weights of bodies are simply those quantities of them which contain equal quantities of electricity, or have naturally equal electric powers; it being the electricity which determines the equivalent number, because it determines the combining force. Or, if we adopt the atomic theory or phraseology, then the atoms of bodies which are equivalents to each other in their ordinary chemical action have equal quantities of electricity naturally associated with them.' (*Phil. Trans.* 1834.)

With respect to the utility of the atomic theory, we cannot do better, in concluding this account of it, than to state, in the words of Dr. Daubeny (*Introduction to the Atomic Theory*, p. 87), that 'it would be superfluous to enlarge upon the proofs already afforded, with respect to the greater precision it has introduced into the science,—the wonderful saving of time and labour which is derived from it, not only by the philosopher in his more speculative inquiries, but even by the manufacturing chemist, in the every-day operations of his trade.'

It is evident that, in the present state of our knowledge, no sooner have we ascertained the exact proportion in which a new substance unites with any one of those bodies whose atomic weight is already determined, than we are enabled to calculate in what quantities it must combine with all the remainder, so that, instead of being compelled, as heretofore would have appeared necessary, to analyze every existing combination, in order to determine the proportion of its ingredients, we might rest contented, were it not for the sake of obviating the chances of error in any single experiment, with ascertaining the composition of one out of

the whole number of compounds, into which the ingredient in question enters.

ATONEMENT, a certain mode of appeasing anger, and obtaining pardon for an offence. In the act of atonement there is commonly understood to be a substitution of something offered, or of some personal suffering, for a penalty which would otherwise be exacted. The word is, indeed, applied colloquially to any circumstance of suffering, voluntary or involuntary, consequent upon criminal conduct or error of judgment. Thus even the spendthrift is said to have atoned for his folly by the hardships endured in consequence of it, and the murderer for his crime by a public death. But this use of the word is altogether indefensible. In theology, it has respect to offence committed against the Deity: it is in the theological acceptation of the term that it will be considered in the present article. The subject in this view of it is partly connected with that of sacrifice [see SACRIFICE]; but it is not identical with it. For it is not certain that all sacrifices had atonement for their object; and sacrifice, as commonly understood, was only one amongst other methods of atonement.

The practice of atonement is remarkable for its antiquity and universality, proved by the earliest records that have come down to us of all nations, and by the testimony of antient and modern travellers. In the oldest books of the Hebrew Scriptures, without noticing those earlier sacrifices the object of which may be considered doubtful, we have numerous instances of expiatory rites where atonement is the prominent feature, occupying, in fact, a large portion of the four last books of the Pentateuch. In some cases the atonement was made for a specific offence (*Levit.* iv., *Numb.* xvi. 46); in others it had reference to a state of transgression, as especially in the case of the scape-goat, on the day of expiation. (*Levit.* xvi.) The offender again either atoned by his own personal act, or received the benefit of atonement by the act of another. (*Levit.* iv.) The Hebrew records contain also notices of the practice of atonement, independent of the Mosaic institutions, and unconnected with the religious opinions of the Hebrew people. The barbarous offerings to Moloch appear in the light of atonements when interpreted by the indignant expostulation of Micah (vi. 7)—'Shall I give my first-born for my transgression, and the fruit of my body for the sin of my soul?' When Job is described (i. 5) as offering burnt offerings according to the number of his sons, and accompanying the act with the explanation, 'It may be that my sons have sinned, and cursed God in their heart,' we are sure that the author of the book, and those for whom he wrote, were familiar with the notion of atonement. The name, indeed, and the age of the writer, are both disputed points; but there are strong reasons for attributing to the work a very high antiquity.

At the earliest date to which we can carry our inquiries by means of the heathen records, we meet with the same notion of atonement, with a distinction also in the application, between the removal of anger incurred by particular offences, and of that which was supposed to belong to the jealous character of the Deity. An instance of atonement of the former kind meets us in the very opening of the Iliad. Agamemnon having offended Apollo in the person of his priest, by refusing a ransom for his daughter, is not content with restitution, but proceeds to atone for his fault by an offering, the purpose of which is declared by Ulysses (*Il.* i. 442)—'Agamemnon sent me to sacrifice a sacred hecatomb to Apollo in behalf of the Danai, that we may appease the Sovereign God.'

Among the many other instances which will readily occur to a reader of the antient classics, the sacrifice of Iphigeneia by her father, to appease the wrath of Diana, is distinguished by the remarkable circumstance of the substitution of one victim for another by the offended goddess. It should be observed, however, that although the subject of the legend belongs to the period of the Trojan war, the legend itself is of a later date than the Homeric poems. In the expiatory rites for certain cases of homicide, sacrificial offerings to the Deity formed a part of the religious ceremony of purification, in addition to the penalty which the offender paid as a compensation to the avenging party. A singular instance of atonement made to the Diana Orthia of the Lacedæmonians is given by Pausanias (iii. 16). Blood having been shed in a quarrel during a solemn sacrifice to the goddess, human victims were regularly offered to her as an atonement for the offence; till Lycurgus substituted for this cruel ceremony the scourging of youths at the altar with such severity, that the penalty was still paid with blood.

The practice of *general* atonement among the heathen nations, whatever may have been its origin, must have been greatly encouraged by a certain article in the popular creed, which is probably expressed pretty accurately by the saying put into the mouth of Solon by Herodotus, that 'the Deity is altogether a jealous being, and fond of troubling the even course of affairs' (φθονερὸν τε καὶ ταραχῶδες, Herod. i. 32). The common notion is remarkably exemplified in a story told by the same historian. Amasis, king of Egypt, having heard rumours of the marvellous and uninterrupted successes of his friend Polycrates, the sovereign of Samos, gave vent to his anxiety on his friend's account in a letter, which is in itself so curious, and so strongly illustrates the matter in hand, that we think it deserves to be presented entire to the reader. 'Amasis says thus to Polycrates:—It is pleasant to hear that one's friend prospers; yet your exceeding good fortunes please me not, knowing as I do that the Deity is a jealous being; and I could wish that both myself and those whom I care for should be fortunate in some of their doings, and in others miscarry; and so pass their lives in changes of fortune, rather than be always fortunate; for I never yet heard talk of any one who with good fortune in everything did not come to his end miserably with an utter downfall. Do you therefore follow my advice, and in respect of your happy chances do as I tell you. Look out well for the most precious thing you have, and that which you would most take to heart the loss of; and then away with it, in such sort that it shall never more come before the eyes of men. And if after this your successes should not take turns and go evenly with your mishaps, still remedy the matter in the way proposed by me.' (Herod. iii. 40.) The story goes on to say that Polycrates took the advice of his friend, and flung into the sea a valuable ring; but the object was defeated by an incredible piece of good fortune, which restored to him his lost treasure. Hereupon Amasis formally dissolved his connexion with a man so evidently marked out for some signal calamity.

In this case the offence was involuntary; yet it was not the less supposed to excite anger and expose the offender to punishment. Here too is an instance of atonement unaccompanied by sacrifice. The mode, indeed, of atoning admitted an almost infinite variety. Even the repetition on a certain occasion of the great games at Rome was strictly an act of atonement for a rather singular offence described by Livy, lib. ii. c. 36.

If we pursue our inquiries through the accounts left us by the Greek and Roman writers of the barbarous nations with which they were acquainted, from India to Britain, we shall find the same notion and similar practices of atonement. From the most popular portion of our own literature, our narratives of voyages and travels, every one probably, who reads at all, will be able to find for himself abundant proof that the notion has been as permanent as it is universal. It shows itself among the various tribes of Africa, the islanders of the South Seas, and even that most peculiar race, the natives of Australia, either in the shape of some offering, or some mutilation of the person. We should expect to meet with it in India, so fertile in every form of superstition; and it is certain that many of the fantastic and revolting rites of the Hindoos bear testimony to its presence. The favourite practice of torturing the body has often there a different object, that of acquiring the reality or the fame of superior sanctity; but undoubtedly it is also resorted to as a mode of atonement.

It has been supposed that the sacrificial rites of the heathens and their practice generally of atonement are but corrupt remnants of a notion and practice which existed at an earlier period of the world, in a purer state of religious knowledge, and which indicated a consciousness of the actual relation in which man stood to his Maker, and pointed darkly at the means by which an amelioration of his condition was to be effected. On the other hand, it is all but universally acknowledged by the believers in revelation, that the Levitical atonements were, in part at least, typical of that one great sacrifice on which the Christian doctrine of the atonement is founded. The nature and limits of this publication do not allow us to consider this part of the subject at a length and in a manner suited to its importance. We can do little more than state what is understood by the Christian when he speaks of the atonement. He does not consider man, according to the heathen notion

already mentioned, to be the object of a capricious and vengeful enmity, but through a sinful nature, and practices and affections conformable to that nature, to have come into a state of alienation from God; in other words, he believes that God is just and holy, that man has sinned, and must therefore be punished. This being his condition, he further believes that the Divine Being, revealed to us under the title of the Son of God, interposed between the sentence and its execution, suffered in our stead, and atoned by his death for our sin; that the immediate consequences were, remission of the original sentence, and restoration to a state which is still probationary, but in which man is made capable of a permanent reunion with his Maker. The believer in the doctrine of the atonement supposes that the sacrifice was necessary according to a law fixed in the counsels of God (which law he also supposes to be revealed to us) that sin must be atoned for before it can be pardoned; but he distinguishes between the necessity of the sacrifice itself, and the further purpose of God in causing it to be publicly made, and providing that it should be universally known. He supposes the knowledge of the fact to be necessary to the formation of the Christian character, and its moral consequences to be, a deeper sense of the turpitude of sin; whereas there might otherwise be danger lest that should be lightly accounted of which appeared to have been lightly forgiven; and also a new and powerful motive to a love of the Supreme Being, supplying a remedy for that selfish principle which might prevail, if the only motives to obedience were the hope of reward and the fear of punishment.

We have endeavoured to state the doctrine of the Atonement in such terms as would be accepted by all, who accepted the doctrine itself on the authority of Scripture. It is well known, however, that among those who would concur in the general statement, there would be found minor differences of opinion, particularly as to the universality of the benefit conferred by the sacrifice. [See CALVIN.] We have also without qualification called the doctrine in question a doctrine of the Christian religion; though we are well aware that there are some whose views of the gospel dispensation and whose interpretation of scripture have led them, whilst fully admitting the divine origin of our religion, to reject as unscriptural the doctrine of the atonement. But these would themselves readily acknowledge, we believe, that they are comparatively few in number. With respect to some few in early times, such as Theodotus the tanner, and Paulus of Samosata, we rather infer from their peculiar notions concerning the person of Christ, than know from any direct evidence, that they dissented, in this particular point, from the general belief. The spirit of controversy, commonly too bitter, was then more fertile in unmeasured vituperation than in full and clear statements of the opinions attributed to opponents.

To atone, according to the vulgar etymology, is to set at one, that is, to reconcile; and hence atonement is etymologically explained at-one-ment. Whether this derivation is right or not, reconciliation seems to have been the primary meaning of atonement with our earlier writers. Hence in the authorised version of the New Testament the same word which in 2 Cor. v. 18 is properly rendered reconciliation, is in Rom. v. 11 rendered atonement. The word, however, soon came to bear the meaning in which it is now used; and such is in fact its ordinary meaning in the authorised version of the Old Testament.

ATOOI or ATOWAI, one of the group of islands in the North Pacific Ocean, which was discovered by Cook on his third voyage, in January, 1778, and which he named the Sandwich Islands, in honour of the then First Lord of the Admiralty.

Atooi is situated in 21° 57′ N. lat. and 160° W. long. The island is ten leagues in length from east to west, and is much broader at the east than at the west end. On the eastern side the surface rises with a gentle acclivity from the sea-shore, and attains its greatest elevation about the centre of the island, which is 7300 feet above the level of the sea. The high ground is covered with lofty trees, the foliage of which is very luxuriant, but the coast on the eastern side is uncultivated, and nearly deserted by the inhabitants. On the western side the land is fertile, and produces abundantly all the vegetables furnished by the islands of those seas.

There is reason to believe that when Captain Cook first arrived at Atooi the natives looked upon his visit as the fulfilment of a tradition or prophecy, which led them to expect the return among them of a chief who had long ago disappeared under mysterious circumstances, and whose return in after times was foretold, when he should present himself 'on an island bearing cocoa-nut trees, and swine, and dogs.' Accordingly, as soon as the ships were anchored, a priest repaired on board, and decorating Cook with red cloth, such as adorned their deities, offered him a pig in the manner of sacrifice, and pronounced a long and, to the Europeans present, an unintelligible discourse. When he landed, the people either withdrew respectfully from sight, or prostrated themselves on the ground before him.

On the south-west side of the island, and about two leagues from the west end, is a tolerably good roadstead and watering-place, called Wymoa. To the eastward of this anchorage a shoal projects, on which are rocks and breakers, and the road is exposed to the trade-wind.

Some strongly suspicious circumstances which occurred at the time of Cook's first visit to Atooi, induced him to be of opinion that the inhabitants were cannibals. The more intimate knowledge we have since acquired of their habits and dispositions leads to the belief that Cook was mistaken in this respect. There is not the least trace of so barbarous a custom to be discovered. It is doubtless true that human sacrifices were resorted to upon certain occasions; but although a great part of their religious ceremonies consisted in feasting, it is not now believed that they ate any part of those human sacrifices.

When they were first discovered, each of the principal islands of the group was under the sway of its own Erie Erie (chief of chiefs), and it was not until 1817 that this island was finally conquered, and the whole of the seven islands were brought under the dominion of King Tamehameha.

Captain Cook computed the population of this island, from such data as he could then obtain, at about 30,000; but it has since been ascertained that this computation was probably below the truth, and that the number of the inhabitants is now about 54,000. (See Cook's *Third Voyage round the World*; Vancouver's *Voyage*, vol. i., *Voyage of H. M. Ship Blonde to the Sandwich Islands in* 1824, 1825.

ATOONI, or ATAONI, a tribe of Nomadic Arabs, placed, according to Burckhardt, between the Nile and the Red Sea, in Middle Egypt, between 26° and 28° N. lat. They border on the Ababde towards the south, with whom they are enemies, and from whom they have taken away the profitable employment of escorting the caravans between Kenneh and Kosseir on the Red Sea, which privilege the Ataoni now farm from the pacha. To the north, the Ataoni are bounded by the Maazy and the Beni Wassel Arabs, who live on the borders of the province of Atfih, and northwards towards Suez. (Burckhardt's *Travels in Nubia*, and Map.) [See ABABDE.]

ATORKOU. [See KURILE ISLANDS.]

ATRAGENE. [See CLEMATIS.]

ATRA'TO is the name of a river in South America, in the republic of New Granada, and in the department of the Rio Cauca, of which latter it drains the northern part, called the province of Chocò. It is formed by the union of three small rivers, Rio Quito, Rio Andageda, and Rio Zitara, which rise in a mountain-knot a little south of 6° N. lat., and soon join one another. It runs nearly straight from south to north for upwards of 150 miles; its mouth is in the bay of Chocò, the most southern part of the Gulf of Darien, near 8° N. lat. Traversing a narrow valley, which is embosomed between two ranges of the Andes, and for two thirds of the year is drenched by almost continual rains, the Atrato brings down a greater quantity of water than would be supposed from the length of its course; and, according to the statement of Alcedo, its mouth is five leagues wide. Just at its entrance into the sea are seventeen small islands, lying in two lines. It is navigable only for a short distance from its mouth for European vessels.

The country drained by the Atrato and its affluents is extremely mountainous, and does not contain a level tract of any extent, except at its mouth. The mountains are covered with forests almost inaccessible, and the narrow val-

leys, on account of the almost continual moisture of the air, are marshy, and so frequently overflowed, that the inhabitants find it necessary, in many places, to build their houses upon trees, in order to be elevated at some distance above the damp soil and the reptiles engendered in the putrid waters. It therefore cannot be a matter of surprise that this country has remained in nearly the same condition in which it was at the beginning of the sixteenth century, when discovered by the Spaniards under Rodrigo de Bastidas and Alonso de Ojeda. But as the adjacent mountains contain rich mines of gold, and the Atrato and all its affluents bring down from them gold dust, a few Europeans have settled on the banks of the river, who cause considerable quantities of gold to be collected by their slaves, by washing the sand of the rivers. The native Indians, too, pay the taxes imposed upon them in that metal. The mines are at present not worked, and agriculture is almost entirely abandoned, though it is said that the valley contains many fertile tracts.

The Atrato river, which is also called Darien and Choco, has obtained some historical celebrity: the first European settlement on the continent of America was founded not far from its mouth in 1510, by Vasco Nuñez de Balboa. It was called Santa Maria el Antiqua, and abandoned for Panama in 1518, on account of the insalubrity of the air. At present its site is almost unknown.

In our times the Atrato has acquired another sort of celebrity: it has been the means by which the only existing water communication between the Atlantic Ocean and the Pacific has been effected. One of its sources, the Rio Quito, rises near the source of the Rio San Juan or Rio de Noanama, and between them runs a ravine or quebrada, called the Quebrada de Raspadura. In this ravine the curate of the village of Novita made his parishioners dig a little canal which is navigable during the rainy season, and thus the canoes of the Indians carry the cocoa and the other products of the agricultural products of the adjacent country from the mouth of the Rio San Juan to that of the Atrato. This canal, which was made in 1788, unites two points, which are respectively on the Atlantic and the Pacific Ocean, and are four degrees of latitude from one another. (Alcedo, Humboldt.)

ATRI, HATRIA PICENA, a town of the province of Teramo or Abruzzo Ultra I, in the kingdom of Naples, situated on a hill near the river Matrino or Piomba, and between that and the river Vomano, and about four miles distant from the coast of the Adriatic, and 12 miles S.E. of Teramo, and near the high road from Teramo to Naples. Atri gives the title of Duke to a Neapolitan family. The ancient Hatria was once a place of considerable importance, it is included by the Roman geographers in the province of Picenum, being in that part of it which was inhabited by the Praetutii. It was called Hatria Picena, to distinguish it from the Hatria or Hadria of the Veneti. [See ADRIA.] They were both colonies of the Etruscans who had also in Picenum the colonies of Cupra Maritima and Cupra Montana. Medals and coins have been found near Atri bearing effigies of fishes, anchors, and other maritime symbols, with the legend *HAT.* The harbour of Hatria was at the mouth of the river Matrinus. The Syracusans, in the time of the elder Dionysius, sent a colony to Hatria, and some of the coins of that town are marked with the Pegasus, which was the symbol of Syracuse. (Delfico, *Numismatica della Città d'Atri nel Piceno.*) Philistus, the historian, being banished from Syracuse by the elder Dionysius, took refuge at Hatria (*εἰς τὸν Ἀδρίαν*), which we must suppose to be Hatria Picena, as this town had received a Syracusan colony: here he probably wrote the greatest part of his history. (Plutarch, *Dion* xi.) Hatria afterwards became a Roman colony. The family of the Emperor Hadrian was originally from this place. (Spartian *Hadrian.*) Of the ancient town hardly any vestiges now remain. The present town of Atri is a small and poor place; it was once surrounded by walls, which have partly fallen to ruin.

ATRIB, or ARTRIB, a village in Lower Egypt, near the eastern branch of the Nile. It is the Athribis (*νομὸς Ἀθριβίτης*) of Herodotus (ii. 166); blocks of stone, which have been observed here, probably indicate the site of a temple, parts of which may still be buried.

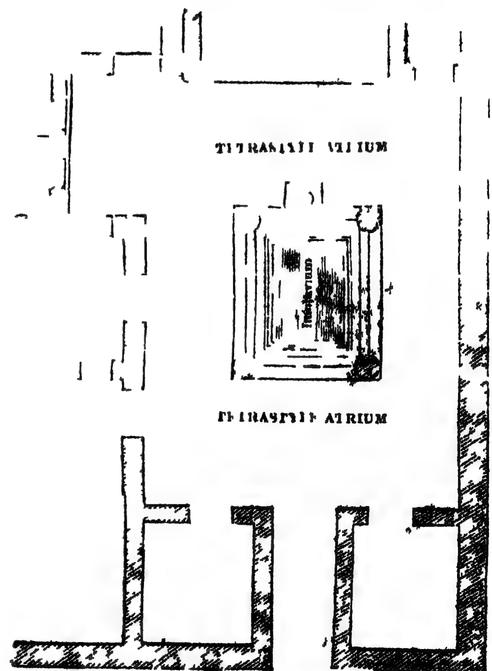
ATRISKOI, or ATRIKANSKOI, one of the four large islands in the Icy Sea, which lie off the coast of Siberia, and to which the name of New-Siberia, or Laechoff islands, has been given. (See NEW SIBERIA.)

ATRIUM, a hall or room of audience in a Roman house. The two words, Atrium and Cavaedium, if not at first synonymous, most probably became so in the course of time. It appears from a passage in Varro, that the Cavaedium, or Cavum Ædium, 'the hollow of the house,' must be the whole area between the rim of the compluvium from which the rain fell, and the impluvium into which the rain fell. The Atrium, properly so called, and as at first distinguished from the Cavaedium, would be the space between the open area and the walls (*parietes*) of the Atrium: thus the Cavum Ædium would be the hollow space open to the sky and rain, while the Atrium would be the covered part, and would therefore form the hall or room of audience. If our conjectures, founded on this obscure passage of Varro, descriptive of the parts of a Roman house, be correct, we would suggest that the compluvium means rather the rim or gutter from which the rain fell [see HOUSE, ROMAN HOUSE] than the whole area of the open space over the impluvium.

The term Atrium is derived, according to Varro (*Ling. Lat.* iv.), from the Atriates, a people of Tuscany, from whom the pattern of it was taken. It was the most important and usually the most splendid apartment of a Roman house. Here the owner received his crowd of morning visitors, who were not admitted to the inner apartments. Originally the Atrium was the common room of resort for the whole family —the place of their domestic occupations; and such it probably continued in the humbler ranks of life. It consisted of a large apartment roofed over, but with an opening in the centre called *compluvium*, towards which the roof sloped so as to throw the rain water into a cistern in the floor called *impluvium*. Vitruvius distinguishes five species of Atria.

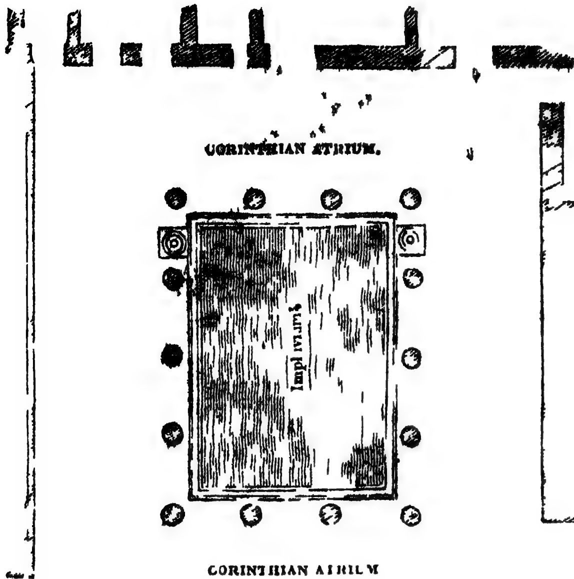
1 Tuscanicum, a Tuscan Atrium, the oldest and simplest of all. It was merely an apartment, the roof of which was supported by four beams crossing each other at right angles, the included space forming the compluvium. Many of these remain at Pompeii.

2 The Tetrastyle or four-columned Atrium, resembled the Tuscan, except that the girders, or main beams of the roof, were supported by pillars, placed at the four angles of the impluvium. This furnished means of increasing the size of the apartment.



[Plan of a Tetrastyle Atrium from a house at Pompeii.]

3 The Corinthian Atrium differed from the Tetrastyle only in the number of columns and size of the impluvium. A greater proportion of the roof seems to have been left open.



Plan of the Corinthian Atrium [illegible]

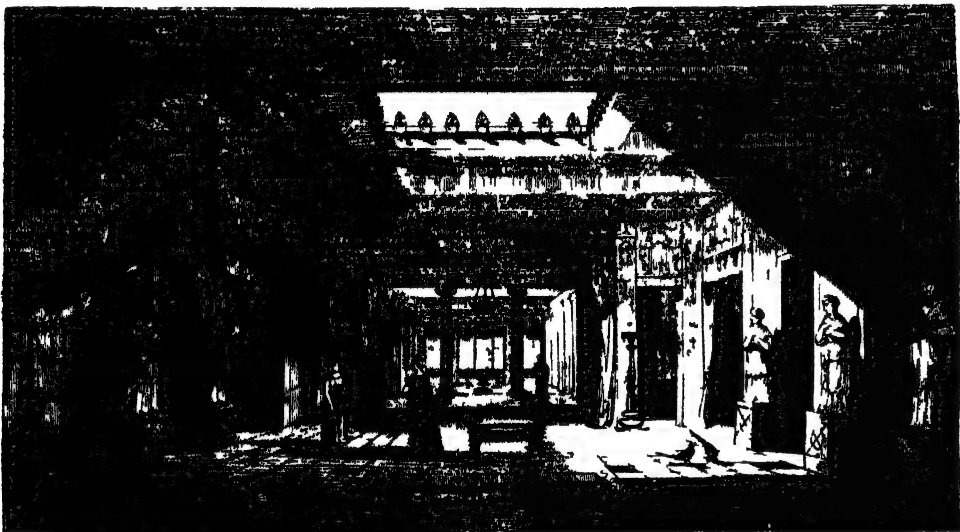
4 Atrium displuviatum had its roof inclined the contrary way, so as to throw the water off to the outside of the house, instead of carrying it into the impluvium

5 The Atrium testudinatum was roofed all over without any vacancy, or compluvium. (Pompeii, vol. ii)

The magnificence of the Atria will be better understood from the annexed representation of the Atrium of the house of Pansa, restored by Mr. Gandy Deering, and published with his permission in the second volume of the *Pompeii*, in the series of the *Library of Entertaining Knowledge* The walls (*parietes*) were painted with elegant designs in the style of arabesque painting [see ARABESQUE] often surrounding compartments in which were frequently depicted the most celebrated subjects of antient mythology, and even on the very floors mythological or historical pictures were formed [Vide MOSAIC, and ROMAN HOUSE and VILLA, see also HOUSE]

For the details of the Atria of Pompeii we must refer the reader to Mazois *Pompeii* 1 vol, folio, and to the first and second series of Gell's *Pompeii*, as well as to the volumes on *Pompeii* published by the Society

In building a marine villa a Roman Atrium might be introduced by the moderns with utility and effect, and we can conceive nothing more delightful than the enjoyment of the warm sea breeze of summer in the cool shade of an Atrium with a portico open to the sea In such a design, the Atrium with its portico should form the centre feature [illegible] the apartments and offices of the occupants should [illegible] the back and two sides [illegible] the Atrium, with the [illegible] placed towards the sea, would give a [illegible]



[Atrium of the House of Pansa

ATROPA, a genus of dicotyledonous plants belonging to the natural order Solaneæ and consisting for the most part of poisonous species It is distinguished from other genera of the same natural order by its regular bell shaped corolla, its five parted permanent calyx which never acquires a bladdery appearance, and by its succulent fruit The species of most common occurrence is the following —

Atropa belladonna, deadly night shade, or dwale is found not unfrequently in thickets and hedges in this country The whole plant is of a lightish green colour except the flowers, which are large and of a dingy brownish purple and the berries, which are of the rich deep black of black cherries The root is perennial, the stem grows about two feet high, and the leaves are acute, with an oblong figure, tapering to each end. The flowers are bell-shaped, larger than those of the harebell, and placed singly in the bosom of the leaves The border of the corolla is cut into five equal lobes There are five stamens, a tapering pistil with two cells, and many seeds in the ovary, a long slender style, and a flattened stigma slightly divided into two lobes. The odour of the whole plant is nauseous and oppressive, as if to warn us of its venomous nature. It is in the leaves, root, and berries that the poison resides and particularly in the berries which from their resemblance to cherries, have often been eaten by children with fatal consequences The active properties of belladonna though most commonly remarked in the fruit, exist [illegible] in the leaves, and especially in the [illegible] which have the same acrid narcotic property They have nevertheless been frequently employed medicinally and extract of belladonna is one of the most energetic preparations in the modern materia medica

Atropa Mandragora or mandrake, is another species still more venomous and dangerous than the last. It is found in many parts of the south of Europe, particularly in the Grecian islands, where it is common Its root is a large dark coloured fleshy mass, often divided into two or three forks, which have been fancied to resemble a human body this circumstance and its well-known poisonous qualities, gave it, in the days of popular ignorance and credulity, the reputation of being endowed with animal feelings the roots were said to shriek when torn from the earth, and it was accounted dangerous to disturb them Even now the young Greeks are said by Sibthorp to wear small pieces of them as love charms This remarkable plant has no appa



[Atropa Belladonna.]

1. A corolla cut open, showing the position of the stamens; 2. The calyx, with the pistil; 3. A berry cut in half to show its two cells, in each of which are several seeds.

rent stem; but its long hairy sharp-pointed leaves rise from the surface of the ground, and form a deep green tuft, from the midst of which the flowers rise on slender stalks about two inches long. Their corolla is of a whitish colour, stained with veins of dingy purple; the fruit is pale, orange-coloured, and about as large as a sparrow's egg. The whole plant is very fetid.



[Atropa Mandragora.]

Atropa physaloides, a plant called Alkekengi in gardens, where it is often cultivated as a hardy annual, belongs now to the genus *Nicandra*.

ATROPA BELLADONNA, MEDICAL USES OF. This species is admitted into the Pharmacopœias of this country, and is employed in the form of dried leaves, or of an extract. Its action on the human system differs according to the quantity taken. If the dose be small, a quickening of the heart's action follows, and an increased quantity of blood is sent to the brain. In this case it has a stimulating effect; but if the dose be larger, though some stimulating action is for a short time apparent, a sedative effect of a very powerful kind ensues. During the first stage, excitement of the heart, the brain, and the intellectual faculties, is manifest: this is succeeded by greatly diminished sensibility, perhaps most markedly observable in the extreme dilatation of the pupil, and the insensibility of the stomach to the stimulus of emetic substances. The spinal cord would appear not to be directly influenced by this agent, but to suffer at last from the impaired state of the function of respiration, and the consequently deteriorated condition of the blood. Convulsions, therefore, only occur late in cases of poisoning by this article. It deserves to be remarked, that the delirium accompanying the action of an overdose of belladonna is always of a gay, elevated kind; a red eruption, or efflorescence, on the skin is also generally observable. The nausea and vomiting are unaccompanied with much pain of the stomach; nor do the stomach and intestines present many traces of inflammatory action. The nausea and vomiting seem to be the result of the condition of the circulation in the brain, the gorged state of the vessels of which is rendered obvious by inspection after death.

The action of belladonna is ascribed to an alkaloid which it contains, called *atropia*, which exists in combination with malic acid.

The cases in which belladonna may be advantageously employed are, diseases of increased sensibility of the nerves, particularly local affections of these, such as tic douloureux and other pains. It has also been recommended for the cure of scrofulous and cancerous tumours, and is employed to dilate the pupil in certain states of diseases of the eye. In the first set of cases, it may be employed either internally or externally. In tic douloureux, given internally along with arsenious acid, it often affords speedy and lasting relief. In the passage of gall-stones through the gall-duct, or of stones from the kidney, applied externally over the painful part, it gives great ease.

Its employment in cases of scrofulous and cancerous enlargement of the glands is likewise either internal or external. That it relieves the pain attendant on such affections is unquestionable; but it cannot be used to effect the cure of these with safety. It undoubtedly changes the process of deposition throughout the whole body, and also in morbid structure, into one of absorption—as is proved by the diminished solidity and increased fluidity of the body, as observed in cases of poisoning by it, where the great quantity of fluids favours the decomposition of the bodies which have died from its influence, and in which putrefaction always takes place very soon. But an equal degree of benefit may be obtained from the employment of antimonial preparations, without the danger which attends the use of this plant.

Its employment in the form of extract rubbed over the eyelids, to dilate the pupil previous to the operation for cataract, is an usual step, but requires caution: the same remark is applicable to its use in the form of solution dropped into the eye during inflammation of the iris. In both these cases it is liable to be absorbed in too great a degree, and to cause alarming symptoms.

Belladonna has been recommended as a useful sedative in the latter stages of hooping-cough. But though it lessens the violence of the spasmodic action, the same degree of benefit may be obtained from hydrocyanic acid, without the liability of inducing that action of the vessels of the brain which ends in hydrocephalus. (See Golis on *Hydrocephalus*.) Belladonna has also been proposed as a preventive of scarlet fever; but it is by no means certain to ward off this disease, while it is almost sure to induce hydrocephalus. Other preventive measures of a safer kind should therefore be had recourse to.

In case of poisoning by it, if taken into the stomach, the most immediate means should be employed to remove it. For this purpose the stomach-pump is best. Emetics can seldom excite the stomach to any expulsive action; in some instances, fourteen grains of tartrite of antimony have been given without any effect.

Vinegar should not be given so long as any of the bella-

donna remains in the stomach, as it heightens its power. Vinegar is useful, however, at a later period, in combating the secondary or depressing effects. [See ANTIDOTES.]

Bleeding relieves the gorged state of the vessels of the head, from the continuance of which the chief danger is to be apprehended: it should therefore seldom be omitted.

ATROPHY, from the Greek word ἀτροφία, signifying 'want of nourishment,' 'wasting;' deficient nutrition either of a part or of the whole of the body.

Nutrition, one of the most characteristic of the vital functions by which the living is distinguished from the inorganic body, consists in the conversion of foreign particles into the proper substance of the living being. The exercise of every vital function is attended with a certain expenditure of the substance of the organ by which the function is carried on. To supply this waste a stream of new matter is always flowing through every organ, from which each takes up the quantity required to replace the quantity which it expends. There are thus two opposite sets of actions incessantly going on in the living body; processes of waste, and processes of supply. In the state of health there is an exact balance between these opposite actions. In every morbid condition of the system, this balance is more or less disturbed, in consequence of which the whole body, or particular parts of it, become either too little or too much nourished. The first state, from whatever cause it results, is called *atrophy*; the second, *hypertrophy*.

In considering the phenomena of disease, then, there is one obvious guide as to its seat. If it be attended with decided, steady, and progressive wasting, it must be seated in some organ of supply. For the wasting itself is not disease, but the result and sign of disease; it is never the primary event: and seldom even the second in succession; it is a phenomenon forming part of a train, its place often being low down in a long series; it is the first to become visible, the phenomena which precede it, and on which it depends, not being visible, and frequently requiring careful investigation to detect them.

Wasting may be either general or local—that of the whole body, or only a part of it; and this will depend entirely on the nature of the cause that produces it, according as it be a disturbing influence affecting the system, or only some individual organ.

1. Wasting may of course be produced without disease, by merely withholding the supply of nutritious food. Nutritious food is the only source from which the material can be derived for repairing the waste of the vital functions. If it be inadequate, every function will languish, and every organ waste, in a degree proportionate to the scantiness of the supply.

2. Among the diseases capable of producing wasting, the most important are those which have their primary seat in the organs of nutrition. The stomach and intestines are the organs which produce the first and the most essential changes on the aliment, by which it is converted into nutriment, and prepared for assimilation. If any cause render these organs incapable of performing their functions, the ordinary waste of the body cannot be repaired, and a general atrophy must inevitably follow. Yet it is remarkable that these organs may perform their functions so imperfectly as to produce a great degree of disturbance in the system, without necessarily occasioning any manifest wasting. People sometimes suffer severely during a long life from dyspepsia, in its manifold forms, without getting thin. The reason is, that though the food be not easily and healthfully digested, yet, in the midst of the disturbance, enough of it is converted into nutriment to supply the ordinary waste of the body. Organic disease, however,—that is, disease attended with a morbid change in the structure of an organ,—rapidly tells upon the system, producing a progressive and ultimately an extreme degree of emaciation; and occasionally a single attack of merely functional dyspepsia, lasting only a few days, will render the body manifestly thinner, and cause the loss of many pounds of weight.

3. Next to the diseases of the primary organs of digestion come the diseases of the organs which co-operate with the stomach and intestines in converting the aliment into nutriment: and more especially diseases of the pancreas and liver. The specific influence of these organs on nutrition will be explained hereafter. [See DIGESTION.] At present, it is sufficient to advert to the fact, that one character of organic disease established in these organs, is a progressive wasting of the body.

4. But the food when digested has a long course to travel before it reaches the blood. It must be taken up by the lacteal vessels, and be carried through the mesenteric glands. [See DIGESTION.] It is probable that these organs are not mere channels of communication between the stomach and intestines and the lungs, but that they effect some change upon the imperfectly-digested aliment, as it passes through them. Certain it is that disease of these organs powerfully influences the process of nutrition, and produces a great degree of wasting. Examples of this are but too abundant in infants and children, who are cut off in great numbers by diseases which, on examination of the body after death, are found to have their chief seat in these organs. [See MARASMUS.]

5. Disease of the organs of assimilation interrupts nutrition just as effectually as disease in the primary organs of digestion. It is not until the digested aliment reaches the lungs that it is converted into blood. The lungs finish what the stomach begins; and the function of respiration is the completion of that of digestion. Any thing that impairs the function of respiration must therefore necessarily impair that of nutrition, and produce a proportionate degree of wasting. The lungs have this peculiarity, that they are capable of what may be called progressive destruction, the obliteration of one part after another in successive portions: the parts obliterated of course cease to contribute their share to the conversion of the aliment into blood; but the parts not obliterated continue to do so pretty much as in the state of health. Hence it is possible to breathe with only one lung, or with only half a lung: and the flame of life may, for a short time, be barely kept alive by a portion of even half a lung. The consequence is that, in certain diseases of the lungs, emaciation is carried to the utmost extent which seems to be compatible with the maintenance of the smallest particle of life.

6. But the process of nutrition is not completed even after the aliment is converted into blood. There still remains what may be termed the function of appropriation. After their conversion into blood in the lungs, the new particles are returned to the left side of the heart, whence they are carried out to the system by the larger trunks of the arterial vessels. These tubes terminate in a system of vessels of extreme minuteness, called the arterial capillaries, which are the true appropriators of the new particles prepared for them in the lungs, the architects and masons of the system, by which the new particles are deposited in the room of the old in the respective organs, and by which the waste is repaired. If, then, the capillaries of the system fail to perform their duty, no matter what quantity or what quality of nutrient matter be brought to them, the function of nutrition is suspended, and the body wastes; and, in like manner, if the capillaries of any particular part fail, the nutrition of that particular part must be at an end, and consequently its bulk diminish.

7. It is chiefly in consequence of the disease of these capillary vessels that acute diseases, such as inflammation and fever, are always attended with so great a degree of wasting, although there is always, combined with this, disturbance of the digestive functions; so that in acute diseases nutrition is interrupted in a two-fold mode, by diminished digestion, and by imperfect appropriation of what is digested.

8. But a due supply of nervous influence is as indispensable to nutrition as a due supply of arterial blood. Whenever therefore the capillary vessels do not receive their appropriate nervous stimulus, the parts to which they belong waste. Whatever injures the nerves in such a degree as to impair their functions is invariably found to occasion atrophy. If the nerves which supply a part waste, that part immediately begins to diminish in bulk; if a part has been long wasted, the nerves distributed to it become so small that they can scarcely be traced. If the head of an unreduced dislocated bone press upon the large trunk of a nerve, the parts to which the nerve is distributed waste. If a poison capable of producing paralysis of the nerves, such as lead, be gradually and slowly introduced into the system, the body wastes; an example of which is seen in the atrophy commonly attendant on the disease termed the *colica pictorum*, the colic of painters. As will be fully shown hereafter, it is the organic, not the sentient, system of nerves that supplies the nervous influence indispensable to nutrition. Injury to the sentient system may indeed occasion atrophy; but it produces this effect indirectly;

whereas injury of the organic system produces it directly, by arresting the nutritive functions: and accordingly, the degree of atrophy arising from diseases of the brain and spinal cord is always very much less than that which is consequent on destroyed or impaired function of the organic nerves.

9. Finally, cessation of function, from whatever cause, is manifestly and invariably followed by wasting of the organ in which the function had its seat. The gland that does not secrete diminishes in bulk; the nerve that does not receive and transmit impressions, or convey its wonted stimulus, wastes; and the muscle that does not contract dwindles away; while increased exercise contributes exceedingly to the augmentation of its volume, as we see in the bulk of the blacksmith's arm, and in the leg of the opera-dancer. From the complete and long-continued cessation of action, the substance of organs is sometimes almost entirely removed; nothing remaining by which its original structure can be distinguished.

Such are the most obvious and common causes of wasting, the detection of which, it is obvious, must precede any rational treatment of the affection. It can be cured only by the application of the appropriate remedy to the morbid state of the organ or organs on which it depends. The detection of this state is sometimes difficult, and the removal of it when discovered often still more difficult. But when it depends only on functional derangement, or on such a kind and degree of organic disease as admits of cure, the physician who succeeds in discovering the cause will easily and surely remove the malady.

ATRO'PIA, a vegetable alkali discovered by Brandes in the juice of the *atropa belladonna*, and in which the well-known poisonous qualities of the plant reside. It may be obtained by treating the decoction of the plant with magnesia, and digesting the precipitate in alcohol, which dissolves the alkali in question. Brandes procured it also by adding sulphuric acid to the decoction, filtering the solution, supersaturating with potash, filtering again, dissolving the precipitate in boiling water, and crystallising the solution.

The crystals are long, transparent, colourless, brilliant needles. Atropia is insoluble in cold water, and very slightly dissolved by water and boiling alcohol. It forms with acids peculiar salts, which readily crystallize; and its saturating power is so great, that 107.5 parts of it neutralize 100 parts of sulphuric acid. During the evaporation of a salt of atropia, so great a quantity of it is evaporated, that the vapour occasions an enlargement of the pupil of the eyes of those exposed to its influence, which continues for several hours. Brandes supposes that the atropia exists, in part at least, in the state of malate in the plant. When atropia is heated in a solution of potash or soda, ammonia is abundantly evolved.

According to Liebig, this alkali consists of

2	atoms of	azote	177.036	or	7.55
22	„	carbon	1681.162	„	71.68
30	„	hydrogen	187.194	„	7.98
3	„	oxygen	300.	„	12.72
			2345.392		99.93

ATSHINSK, or **ACHINSK**, a very thriving town, formerly the capital of the circle of that name, but at present comprised in the circle of Kainsk, in the province of Tobolsk, in Siberia. It is situated on the Atshin and Tshulym, the latter of which, on leaving the town, runs in a northerly direction, until it falls into the Oby. It lies at a distance of 809 versts (about 540 miles) west of Tobolsk, and about 200 versts (130 miles) east of Tomsk, in 56° 22′ N. lat., and 90° 50′ E. long. (Stein.) Though only founded in 1782, it is gradually becoming an important place of transit for inland trade, and takes no small share in the traffic across the line of the Ural, in consequence of its communication with Tobolsk through the Oby and Tshulym. The soil in its vicinity is of so fertile a description, that the seed sown upon it usually produces thirty-fold; husbandry is therefore the principal pursuit of the inhabitants, who supply large quantities of corn to the neighbouring provinces, many of which are destitute of any corn of their own growth. The inhabitants consist either of exiles or Tshulym Tartars.

ATTAC'CA, in music (Ital. *to attach to*), denotes, that the next movement is to follow immediately, without any pause. In the language of the old contrapuntists, *attacco* signifies a short, irregular subject, not liable to the severe laws of fugue.

ATTACHMENT, FOREIGN. This is a judicial proceeding, by means of which a creditor may obtain the security of the goods or other personal property of his debtor, in the hands of a third person, for the purpose, in the first instance, of enforcing the appearance of the debtor to answer to an action; and afterwards, upon his continued default, of obtaining the goods or property absolutely in satisfaction of the demand. The process in England is founded entirely upon local customs, and is an exception to the general law of the land. It exists in London, Bristol, Exeter, Lancaster, and some other towns in England; and a mode of securing the payment of a debt by a proceeding against the debtor's goods in the hands of third persons, strongly resembling the process of foreign attachment, with some modifications, and under different names, forms a part of the municipal laws of Scotland, Holland, and most European countries in which the civil law prevails. In Scotland this proceeding is called arrestment. (See Bell's *Commentaries on the Laws of Scotland*, vol. ii.) Many remarks upon the Scotch practice of attaching property, called arrestment, will be found in the examination of Mr. William Bell, in Appendix D to the Fourth Report of the Common Law Commissioners. In France, a process of this kind exists under the name of *saisie-arrêt;* the regulations respecting it will be found in the *Code de Procédure Civile*, partie I., livre 5, tit. 7.

The custom of foreign attachment in London differs in no material respect from the same custom in other parts of England; it is, however, much more commonly resorted to in the lord-mayor's and the sheriff's courts of London, than in any other local courts. It is not so much in use at the present day as formerly; but of 389 actions tried in the lord-mayor's court in London during the last seven years, 201 have been cases of attachment; and in many instances, very large sums, amounting to several thousand pounds, have been recovered in this manner. In the sheriff's court the cases of attachment have not been so numerous.

As this customary proceeding is of great importance to the commercial interests of the inhabitants of the metropolis, and is not generally understood, it may be worth while to describe it particularly. The creditor, who is the plaintiff in the action, makes, in the first instance, an affidavit of his debt, which must have been contracted within the city of London or its liberties, and should be actually due, as it is doubtful whether an attachment can be made upon a contract to pay money at a future day. The affidavit of debt having been made, an action is commenced in the usual manner: the only parties named in the first instance being the creditor as plaintiff, and the debtor as defendant. A warrant then issues, or is supposed to issue, to the officer of the court, requiring him to summon the defendant; upon this warrant the officer returns that the defendant 'has nothing within the city whereby he can be summoned, nor is to be found within the same,' and then the attachment may be made. This return of *non est inventus* to the process against the defendant is of the very essence of the custom, and without it all the subsequent proceedings on the attachment would be invalid; in point of fact, however, where an attachment is intended, the officer never attempts to summon the defendant, or gives him any notice of the action, but merely makes his return to the warrant as a matter of course. After this return, a suggestion is made, or supposed to be made, by the plaintiff to the court, that some third person within the city has goods of the defendant in his possession, or owes him debts, by which goods, or debts, the plaintiff requires that the defendant may be *attached*, until he appears to answer to the action brought against him. The attachment is then effected by a notice or warning served by the officer of the court upon the third party, who is called the garnishee, from an old French word '*garnier*, or *garniser*' (to warn), from whence *garnisée*, or vulgarly, *garnishee* (the person warned), informing him that the goods, money, and effects of the defendant in his hands are attached to answer the plaintiff's action, and that he (the garnishee) is not to part with them without the leave of the court. After this warning, the effect of which is to secure the property in the hands of the garnishee, the process again returns, or in principle ought to return, to the defendant, who must be publicly called and make default on four successive court-days, before any further proceedings can be taken against his goods. In practice, however, no

process is served upon the defendant either at this or any other stage of the proceeding, nor is he ever in fact called, —notice of the action or the attachment being, according to the present practice, never actually given to him. After the four court-days have elapsed, the garnishee may be summoned to show cause why judgment should not be given against him for the goods or debt formerly attached in his hands. He then either appears and pleads, or he makes default; if he makes default, and the subject of the attachment is money, or a debt ascertained, the judgment of the court is final in the first instance, and execution may be issued at once for the sum demanded. But where the subject of the attachment is goods, a formal appraisement is made under a precept from the court in which the action is pending by two freemen, who are sworn for the purpose, and judgment is then given for the goods so appraised. It sometimes happens that the garnishee has removed the goods before appraisement, in which case the officer returns the fact to the court, and a jury is empannelled to enquire and assess the value of the goods removed, and thereupon judgment and execution follow for the sum so assessed. But before execution can in any case issue against the garnishee, the plaintiff is required to enter into a recognizance with two sureties, obliging himself to return the money or goods taken under the attachment if the *defendant* appears in court within a year and a day and disproves or avoids the debt, or shows that it did not arise within the city.

The above is the course of proceeding in the case of a judgment by default. Instead of following this course, however, the garnishee who is commonly the banker, factor or agent of the defendant, usually appears and pleads. As matter of defence he may deny that any debt is due from himself to the defendant, or that he possesses any goods or money of his; he may also show that he has a lien upon the defendant's goods in his own right. The question thus raised between the plaintiff and the garnishee is then tried by a jury, and judgment is given upon their verdict with or without appraisement according to the nature of the property attached. It should here be remarked that, according to the custom, the goods can never be actually seized in execution under the attachment; if the garnishee refuse to deliver them, the only remedy of the plaintiff is to arrest him.

A difference of opinion prevails amongst mercantile men with respect to the utility of this proceeding. On the one side it is said to be important, in a commercial community, to be readily able to apply the property of an absent debtor wherever it may be found, to the payment of his creditors; and this it is contended is particularly advantageous in a city much frequented by foreigners for the purpose of trade, who may contract debts during their abode in England, and then remove themselves to foreign parts beyond the reach of personal process. On the other hand it is supposed to embarrass commercial operations in consequence of the enormous power which it places in the hands of creditors, a creditor for 20*l* being entitled, if he pleases, to attach property to the amount of 20,000*l*, or any larger sum, which cannot be applied in discharge of any commercial engagements which the debtor may have formed until the attachment is disposed of. The apprehension of this process is said to deter foreign merchants from consigning cargoes to London. It does not, however, appear to be likely that the existence of this custom should under ordinary circumstances, have the effect of deterring the fair merchant from sending his goods to London, though it may well happen that a trader, who has contracted debts in London which he does not intend to pay, or who suspects that claims will be set up which he does not wish to afford the claimants any facilities in litigating, would hesitate to send a cargo to a port where, by means of this process, any of his creditors there, real or pretended, might instantly seize it. Nor can much practical inconvenience arise from the power of attaching a large property for a small debt; for the garnishee, who is almost in all cases the agent of the defendant in some shape or other, may at any time dissolve the attachment, by appearing for the latter, and putting in bail to the action; or, if satisfied with the truth of the debt upon which the attachment issues, he may pay the plaintiff's demand, and take credit for the amount in his account with the defendant; for a payment under an attachment would be *pro tanto* an answer to any demand against the garnishee by the defendant. The alleged objections do not, therefore, appear to be so formidable as has been represented; but the advantage of a speedy and safe mode of recovering debts is obvious.

There are, however, many imperfections in this form of proceeding. In the first place, no costs are recoverable on either side; and therefore where a small debt is contested, if the plaintiff succeeds against the garnishee, his costs may very possibly exceed the sum he can recover; and if the garnishee succeeds in showing himself not to be liable to the attachment, he may incur a considerable expense without the possibility of reimbursement. Secondly, the efficiency of the custom is much impeded by the limited extent of its local jurisdiction. Thus, goods in a warehouse in Thames street may be attached, but if lying in a lighter on the river Thames within a yard of the warehouse, they are exempt. So also, if a merchant keep his cash with a banker in the city, it is liable to the process; but if his banker dwell a few yards beyond the limits of the city, no attachment can be made of his balance; unless indeed the plaintiff should prepare himself with process, and be fortunate enough to serve it upon one of the partners when accidentally within the jurisdiction, in which case as he is supposed to carry with him all the debts and liabilities of the house to which he belongs, the balance of any customer of the firm might be attached. But the most serious objection to the proceeding as universally practised in London at the present day, arises from the palpable opportunity which it affords for fraudulent collusion between the plaintiff and the garnishee to the injury of the defendant. By the letter of the custom as above stated, the defendant must be sought in the first instance by the officer of the court, and if not found in the city, and if he does not answer when openly called in court, the first process of attachment may issue against his goods. Still no step can be taken towards appropriating them until the defendant has been solemnly called at four several courts; and then, and not till then, the garnishee may be summoned. In ancient times therefore, when the custom was strictly adhered to, every possible precaution was taken to give notice to the defendant of the intended proceeding against his property; and unless he was actually absent from the country (in which case he might on his return within a year and a day resort for his protection to the securities given by the plaintiff for restoring the goods), it was scarcely possible that he should not be informed of it. But the present practice is to give no notice of any kind to the defendant. The summons, the return of *non est inventus*, the four several defaults on being called in court, are indeed entered formally upon the record; and there is no doubt that unless they were so entered in every case, the judgment against the garnishee would be erroneous; for the custom itself would be contrary not only to the common law, but to the first principles of justice, if it sanctioned a proceeding against a man or his property without notice. But this principle is at the present day entirely disregarded, or is considered a mere matter of form; and there is in practice no protection whatever to the defendant against a fraudulent collusion between the garnishee and the plaintiff. It is quite within the range of possibility that a solvent defendant may reside next door to the garnishee with whom his goods are deposited; that the garnishee and plaintiff may agree to an attachment for a real or fictitious debt; that execution may issue, and even that the year and a day may expire, and consequently the property may be absolutely lost to the defendant before he has any notice of the transaction. This objection however applies not to the custom itself, which is in this respect just and reasonable, but to the abuse and corruption of it in modern practice.

ATTACHMENT (Process.) An attachment is a kind of criminal process which Courts of Record are authorized to issue summarily upon a mere suggestion, or upon the personal knowledge of the judges, without indictment or information. This process is properly granted in cases of contempts, which all courts of record may punish in a summary manner according to their discretion. Thus if a contempt be done in the presence of the court by a breach of the peace, an open defiance of its authority, or an interruption of its proceedings, the offender may at once be attached and committed, and afterwards punished to a reasonable extent at the discretion of the presiding judges. On the other hand, if it be suggested by a third person upon oath that one not present in court has committed an action which amounts to a contempt, the court will make a rule

upon the offender to show cause why an attachment should not issue against him; or in flagrant and urgent cases, where an immediate remedy is necessary, will grant an attachment on the first complaint without any previous rule to show cause. In modern practice attachments are chiefly employed in cases of constructive contempts, such as abuses of the administration of justice by judges of inferior jurisdiction, for corruption or injustice by officers and ministers of the courts in refusing to execute lawful process, for doing it oppressively, corruptly, or extortionately, or for making false returns. Malpractices in these respects, which bring discredit on the administration of justice, are for that reason construed to be contempt of the courts, and punishable as such by attachment. Upon a similar principle, attorneys, who are officers of the different courts in which they are admitted, may be punished by this summary mode of proceeding for any dishonest practice, and in particular for unjust or fraudulent conduct towards their clients. It is said by Mr. Sergeant Hawkins, that barristers, 'though not officers of any court, yet inasmuch as they have a special privilege to practise the law, and their misbehaviour tends to bring a disgrace upon the law itself, are punishable by attachment for any foul practice, as other ministers of justice are.' (Hawkins's *Pleas of the Crown*, Book 2, c. 22, s. 30.) Jurors also may be liable to attachment for constructive contempts in their ministerial capacity: for instance, for making default when lawfully summoned; for refusing to be sworn or to give any verdict; or for receiving a bribe or instructions from either of the parties in a suit to be tried by them. In early periods of the history of our law, jurors were sometimes attached for acts done in their deliberative or judicial capacity, as for giving verdicts against evidence or the direction of the court in matter of law. That giving a false verdict should be considered a contempt of court was not so unreasonable as it may at first appear to those acquainted only with the province of juries at the present day. In antient times the jury were to all intents and purposes witnesses who were sworn to speak the truth (*verum dicere*); and if they gave a wilfully false verdict upon facts, they committed a similar kind of contempt to that of witnesses committing manifest perjury at the present day. Mr. Sergeant Hawkins gives it as the inclination of his opinion that a jury would be still liable to an attachment for giving a verdict wilfully against the direction of the court in point of law. The absence of an instance, however, in modern times of such a proceeding, would afford a strong argument against its legality. Besides the contempts committed by parties and persons as above noticed, there are instances which it would be endless to enumerate, in which all persons may become liable to attachment for offences of this description. Thus wilful perjury in the presence of the court, disrespectful words or conduct to the presiding judge, counterfeiting writs, refusing to pay money or perform acts according to the direction of an award entered into by rule of court, non-payment of costs taxed by the officer of the court in which a proceeding is pending, are all instances of contempts which subject the persons who commit them to the summary process of attachment.

Attachment of Privilege was a process by which attorneys or other officers, entitled to privilege in the courts to which they belong, might, before the Uniformity of Process Act, enforce the appearance of another person in their respective courts to answer to an action.

ATTACK, in military language, the effort made by armed men to dispossess an enemy of any favourable position occupied by him.

ATTAINDER, from the Latin word *attinctus*, 'attaint,' 'stained,' is a consequence which the law of England has attached to the passing of sentence of death upon a criminal. Attainder does not follow upon mere conviction of a capital offence; because, after conviction, the judgment may still be arrested, and the conviction itself cancelled, or the prisoner may obtain a pardon; in either of which cases no attainder ensues. But as soon as sentence of death is passed, or a judgment of outlawry given where the person accused flies from justice, which is equivalent to sentence of death, the prisoner becomes in contemplation of law *attaint*, stained, or blackened in reputation. He cannot sue or be a witness in a court of justice; he loses all power over his property, and is rendered incapable of performing any of the duties, or enjoying any of the privileges, of a freeman. The person of a man attainted is, however, not absolutely at the disposal of the crown. It is so for the ends of public justice, but for no other purpose. Until execution, his creditors have an interest in his person for securing their debts; and he himself, as long as he lives, is under the protection of the law. (See Macdonald's case, vol. xviii. of Howell's *State Trials*, p. 862.)

We shall consider, first, the subject of attainder as it exists by the ordinary laws of the realm; and, secondly, give some account of those extraordinary enactments of the legislature, commonly known by the name of Bills of Attainder.

1. The principal consequences of attainder, according to the ordinary course of law, are forfeiture of the real and personal estates, and what is technically called corruption of the blood of the offender. The forfeiture of the personal estate dates from the time of his conviction, but extends only to the goods and chattels of which he was actually possessed at that time. Real estate is not forfeited until attainder; but then the forfeiture (except in the case of attainder upon outlawry) has relation to the time when the offence was committed, so as to avoid all intermediate sales and incumbrances. (Co. Litt. 390 b.)

The extent and nature of the forfeiture of real estate upon attainder differ in the case of high treason, and in cases of murder or other felony. Attainder for high treason is followed by an immediate and absolute forfeiture to the crown of all freehold estates, whether of inheritance or otherwise, of which the person attainted was seised at the time of the treason committed. This consequence of attainder for high treason is said by Sir W. Blackstone to have been derived from Anglo Saxon jurisprudence. (*Comm.* vol. ii. p. 251; iv. p. 384.) Copyholds are in like manner forfeited to the lord of the manor of which they are holden, upon the attainder of the tenant.

By stat. 5 & 6 Edw. VI., cap. 11, the dower of the widow of a person attainted for high treason is also forfeited. But it is to be remembered that there is no forfeiture unless an actual attainder takes place; and therefore if a traitor dies before judgment, or is killed in open rebellion, or is put to death by martial law, his lands are not forfeited, unless a special act of parliament is passed for the purpose. It is said, however (*Reports*, iv. 57), that if the chief justice of England in person, upon the view of the body of one killed in open rebellion, records the facts and returns the record into the court of King's Bench, both the lands and the goods of the rebel shall be forfeited.

This absolute and entire forfeiture of the estates of persons convicted of high treason was often productive of extreme hardships and injustice, by making their families, who were no parties to their crimes, participate in their punishment. In certain modern treasons, therefore, relating to the coin, created by statute, it is expressly provided, that they shall work no forfeiture of lands except for the life of the offender, and that they shall not deprive his widow of her dower. (Stat. 5 Eliz. c. 11; 18 Eliz. c. 1; 8 & 9 Will. III., c. 26; 15 & 16 Geo. II., c. 28.)

In cases of attainder for murder or other felony, the forfeiture of lands to the crown does not extend for a longer term than a year and a day, with an unlimited power of committing waste upon the lands during that period. This is called in our old law-books '*The King's year day and waste*.' After the expiration of this term, the lands would naturally descend to the heir of the person attainted, if the feudal law of escheat for corruption of blood did not intervene, and vest them in the lord of whom they are holden. In order to understand the doctrine of escheat for corruption of blood, we must remember, that, by the feudal law, from which our modern law of real property is chiefly derived, all lands were, or were supposed to be, held by gift from a superior lord, subject to certain services and conditions, upon neglect or breach of which (as well as upon failure of issue of the grantee) the lands reverted, or in feudal language, escheated, i. e., fell back to the original giver. Now, by the attainder of a tenant in fee-simple for felony, the compact between him and his lord was totally dissolved; his blood was supposed to be corrupted, and he was disabled not only from inheriting lands himself, but from transmitting them to his descendants. Even though he had no lands in possession at the time of the attainder, and acquired none afterwards upon which the law of forfeiture could operate, the law of escheat might operate after his death to the prejudice of his descendants. For, owing to the corruption of his blood, which completely stopped up the course of descent, it was impossible to derive a title to any lands, either from

him directly, or from a more remote ancestor through him. The inevitable consequence was an escheat to the lord. As most lands in England at the present day are held of the king as the feudal superior, he is generally the sole party interested in the estates of attainted persons. Owing to this circumstance, we may be apt to confound forfeiture with escheat, unless we illustrate the difference between them by some familiar instance of their respective operations according to the law as it formerly stood. Thus (to take the instance cited by Blackstone from Lord Coke, *Comm.* vol. ii. p. 253), if a father were seised in fee-simple, and his son committed treason and were attainted, upon the death of the father the lands escheated to the lord, because the son by the corruption of his blood was incapable of being heir, there could be no heir during his life; but nothing was forfeited to the king, for the son never had any interest in the lands to forfeit.

The practical injustice and hardship caused by the doctrine of the corruption of blood in punishing the offences of the guilty by a heavy punishment upon the innocent, have frequently attracted the attention of the legislature, though, until lately, little has been done towards permanently remedying the evil. Thus it has been usual, where a new felony has been created by Act of Parliament, to make an express provision that it should not extend to corruption of blood. By the stat. 7 Anne, cap. 21 (the operation of which was deferred by 17 Geo. II. cap. 39), it was enacted that after the death of the Pretender and his sons, no attainder for treason should extend to the disinheriting any heir, nor the prejudice of any person other than the offender. But, both these statutes being repealed by 39 Geo. III. cap. 93, the ancient law of forfeiture for treason was restored. By the stat. 54 Geo. III. cap. 145, corruption of blood was taken away for attainder, except in cases of treason, petit treason (i.e. where a wife had murdered her husband, a servant his master, or an ecclesiastic his superior), and other murder. Finally, the worst consequence of the doctrine of corruption of blood, viz., the impossibility of descents being traced through attainted persons, was removed by the late statute of the 3 & 4 Wm. IV. cap. 106, sec. 10, which enacted that no attainder for the future should prevent descent (which, by the first section of the act, means, title to inherit by consanguinity) from being traced through the attainted person, unless the lands escheated before the 1st of January, 1834.

A dignity descendible to the heirs general is forfeited to the crown both for treason and for felony. An entailed dignity is forfeited for treason, but not for felony. Thus Lawrence, Earl Ferrers, whose peerage was limited to the heirs male of the body of his ancestor, being attainted for murder in the reign of George II., was succeeded by Washington, Earl Ferrers, his next brother. (Cruise, *Real Property*, lib. ix. sec. 64, 72, 73.)

The corruption of blood produced by attainder cannot be effectually removed except by authority of parliament. 'The king,' says Blackstone (vol. ii. p. 254), 'may excuse the public punishment of an offender. He may remit a forfeiture, in which the interest of the crown is alone concerned; but he cannot wipe away the corruption of blood, for therein a third person hath an interest, the lord, who claims by escheat.' But it appears from the same author (vol. iv. p. 402), that the king's pardon is so far effectual after an attainder, that it imparts new inheritable blood to the person attainted, so that his children born after the pardon may inherit from him.

2. Besides the modes of attainder by the common law, as above described, there have been frequent instances in the history of England, of attainders, by express legislative enactment, called bills of attainder. This has happened when, either from the extraordinary nature of the crime, or from unforeseen obstacles to the execution of the ordinary laws, it has been thought necessary to have recourse to the supreme power of the legislature, for the purpose of punishing particular offences. These enactments, either in the shape of bills of attainder or bills of pains and penalties, have been made at intervals from an early period of our history, down to very recent times. The moral justice, as well as the policy of these *ex post facto* laws, has been often questioned, and they have generally occurred in times of turbulence or of arbitrary government, but the number of them is sufficiently large to form a formidable list of precedents for any future suspension of the ordinary law. There were some instances of them under the Plantagenet princes, as the bills of attainder against Roger Mortimer, and Edmund earl of Arundel, in the reign of Edward III. Both of these, however, were reversed in the same reign. It was not till the reign of Henry VIII., which was fertile in new crimes and extraordinary punishments, that the proceeding by bill of attainder became so common as almost to supersede trials according to the ordinary process of law. Scarcely a year passed without persons of the highest rank and most distinguished character being brought to the scaffold by bill of attainder. Among them were the celebrated earl of Surrey, Cromwell earl of Essex, who is said to have been the adviser of these measures, and most of those persons who suffered for denying the king's supremacy. All of these were attainted upon mere hearsay evidence, and some not only upon no evidence at all, but without being heard in their defence. In the following reign of Edward VI., the Protector Somerset encouraged a bill of attainder for treason against his brother Lord Seymour of Sudley, the lord high admiral of England and husband of the queen dowager Catharine Parr, which was hurried through both houses of parliament, without the accused being permitted to say anything in his defence. But, as the nation became better acquainted with the principles of constitutional freedom, parliamentary attainders became less frequent. Under the Stuarts recourse was seldom had to this extraordinary mode of proceeding. It was thought necessary to adopt it in the time of James I., with respect to Catesby, Percy, and several other persons, who were killed in the insurrection that ensued upon the discovery of the Gunpowder Plot, or died before they could be brought to trial, as they, not having been tried, could not have been attainted by the ordinary process of law. It was again adopted by the Long Parliament in Lord Strafford's case, on the ground that he was an extraordinary criminal, who would have escaped comparatively uninjured if no other penalties than those of the existing laws had been awarded against him. But even Lord Strafford's attainder was reversed after the restoration of Charles II., and all the records of the proceedings cancelled by act of parliament. The duke of Monmouth also, on his appearing openly in arms against the government, in 1685, was attainted by statute. A remarkable instance of a proceeding by bill of attainder occurred in the case of Sir John Fenwick, who, in the year 1696, was attainted for a conspiracy to assassinate William III. There is no question that Sir John Fenwick might have been tried by the ordinary process of law. The excuse urged for resorting to a bill of attainder was, that there was no *moral* doubt of Fenwick's guilt; but that as two witnesses were required by the stat. 7 Will. III. cap. 3, in order to convict him, and as one of them had been tampered with, and removed out of the kingdom, a *legal* proof of an overt act of treason became impossible.

The effect of this bill of attainder was therefore to suspend the statute of 7 Will. III. cap. 3, before it had been two years in operation, in order to destroy an individual. This questionable exertion of legislative power did not take place without a strong opposition, and has been frequently reprobated in subsequent times. Bishop Burnet, one of its most strenuous supporters, allowed that 'this extreme way of proceeding was to be put in practice but seldom, and upon great occasions.' (Howell's *State Trials*, vol. xiii.)

The legislature, acting in conformity with this sentiment, have seldom, since the accession of the House of Hanover, had recourse either to Bills of Attainder, or Bills of Pains and Penalties. One instance of a departure from this principle occurred during the Irish Rebellion, in 1798, in the case of Lord Edward Fitzgerald, who being arrested on a charge of high treason and dying in prison, before he could be brought to trial, of the wounds which he had received in resisting his apprehension, was attainted by Act of Parliament. But when the violence of party spirit had subsided, the old principle of the constitution, that every man shall be considered innocent of a crime until his guilt has been legally proved, prevailed, and a few years ago the attainder was reversed. There is little reason to apprehend that a practice so obviously unjust, and so dangerous to the fundamental principles of good government, will be adopted in future.

ATTAINT (*attincta*), an old writ, which formerly lay to inquire whether a jury had, or had not, given a false verdict. It at first lay only on the trial of writs of assize, and is said to have been introduced by Henry II. at the instance of Chief

Justice Glanville, as a check on the vast power then vested in the recognitors of assize of finding a verdict according to their own personal knowledge, without an examination of witnesses. It was afterwards extended by Edward I. to all pleas of land or freehold, and by statutes in the reigns of Edward I. and Edward III. to all pleas whatsoever, whether real or personal, except writs of right, where the issue was joined on the *mere right*.

The jury on the attaint were twenty-four in number, and must be possessed of freehold of the annual value of 20*l*., if the matter in dispute was of 40*l*. value in personals, or of 40*s*. a year value in lands. At common law, if the grand jury found that the verdict was false, the judgment against the jury finding it was one of extreme severity: namely, to lose their *liberam legem*, and be infamous, to forfeit their goods and profits of their lands, to be imprisoned, and their wives and children to be thrown out of doors; their houses to be rased, their trees extirpated, and their meadows ploughed, and the plaintiff to be restored to all he had lost by reason of the unjust verdict. But a much more moderate judgment was afterwards introduced by 11 Henry VII. c. 24, made perpetual by 13 Eliz. c. 25.

This clumsy expedient for controlling the extensive power of a jury was found to consist of terrors which could only with great difficulty, and in rare cases, be carried into operation. The jury could only be attainted either for finding a verdict contrary to the evidence, or for finding one on evidence not sustaining the issue. But it was almost impossible to attaint them on the former ground, since they were at liberty to take their own personal knowledge for evidence; as to the last, the judge had some control over them by giving them directions as to the precise point of the issue to which the evidence was to be applied, and if they found a verdict contrary to the express direction of the judge, they ran great risk of an attaint. So inconvenient and ineffectual, however, was the proceeding, that it gave place, in the time of Elizabeth and James I., to the now existing practice of setting aside verdicts on motion and granting new trials; and very few instances of an attaint appear in the books later than the sixteenth century. By the 6 Geo. IV. c. 50 (consolidating the laws relating to juries), the proceeding was totally abolished: but it is provided, by sec. 61, that any person guilty of *embracery* (corruptly influencing a juror by promises or money) may be proceeded against, and punished as before. [See EMBRACERY].

ATTALE'A, a genus of palms, found chiefly in the tropical parts of America, where it occupies the richest soil and the hottest forests, rarely ascending the sides of mountains, or spreading from the woods into the open country. It extends, according to Von Martius, as far south as the tropic of Capricorn. It belongs to the same division of the natural order as the cocoa-nut, from which, as well as from all its immediate allies, except *Areng* (which see), it is distinguished by its nut containing three cells and three seeds. It is described by the great illustrator of this noble family as consisting of lofty or middle-sized, or even occasionally stemless species, with a thickish trunk, the wood of which is soft and of a reddish-brown colour; it is irregularly marked externally with scars, and is terminated by large pinnated leaves, the stalks of which are broad, and the segments smoothish, rather thick, plaited, and neat-looking. The bunches of fruit are simply branched, but are often of a vast size, and hang down from the bosoms of the leaves, covered with brownish nuts, the seeds of which are eatable. Several species are known, of which the most remarkable are the two following.

Attalea funifera, called by the natives piaçaba, is found in the native forests of the maritime provinces of Brazil, where it is one of the most valuable gifts which the bountiful hand of nature has conferred on man. The best cordage in America, for naval purposes, is manufactured from the fibres of the leaf stalks and other parts; such ropes are of great strength, and are extremely durable in salt water; no other cables are employed in a great part of the Brazilian navy. This species does not grow more than from twenty to thirty feet high; its nuts, which are about as large as an ostrich's egg, have a hard shell like that of the cocoa-nut.

Attalea compta, another species, is equally useful, but for different purposes. This plant, the *pindova* of the old writers on Brazil, and the *indajá* of the modern Portuguese, forms delightful groves in the interior of the country, growing from twenty to fifty feet clear of its branch-like leaves. The latter are from fifteen to twenty feet long, and about three feet wide. The fruit is the size of a goose's egg, and contains an eatable kernel, of which the negroes are fond. Its leaves form an excellent thatch, and are woven into hats, mats, and baskets.



[Attalea compta.]

Attalea speciosa is the plant which, in the provinces of Maranhaõ and Para, furnishes the nuts which the Brazilians burn for the purpose of smoking the juice of *Siphonia elastica*, or Indian rubber, until it becomes black.

A'TTALUS I., king of a small but wealthy and populous country in the north-western part of Asia Minor, of which Pergamus (properly Pergamum) was the capital. The name of Asia was specially applied by the Romans to this country. Attalus was the son of Attalus, youngest brother of Philetærus, and cousin to Eumenes I., whom he succeeded B.C. 241. His mother's name was Antiochis, daughter of Achæus (Strab., 624), of whom we know nothing more than that he was not the same person who usurped the authority of the king of Syria, and became a formidable opponent to Attalus. Of the proceedings during the earlier part of his reign we have no record, though we may collect from a passage in Polybius (iv. 48.) that he had extended his authority over the whole of Asia Minor, west of Mount Taurus.



[Silver. British Museum.]

He first assumed the regal title after a victory over the Gauls, who had taken possession of that part of the country called after them Galatia (Liv. Polyb. Strab.): this leaves us in doubt as to the rank which his predecessors, Philetærus and Eumenes, enjoyed, but it certainly appears that they had not taken the title of king. At the time when the Rhodians and inhabitants of Byzantium were preparing to make war on each other, in consequence of the latter having imposed a

tax on all vessels entering the Euxine (about 221 B.C.), Attalus readily espoused the cause of the Byzantines, though he could be of no essential service, as he had been defeated a little before by Achæus, and confined within the limits of Pergamus. He still, however, continued the war with Achæus; and having taken into pay a body of the Gauls called Tectosages, he recovered many of the cities of Æolis, which had submitted to Achæus. In the midst of his victorious career, an eclipse of the moon (B.C. 218) happened, which so alarmed the superstitious Gauls that they refused to advance any farther. He left them on the Hellespont, and returned with his army to Pergamus. (Polyb. v. 77, 78.) We find him in alliance (B.C. 216) with Antiochus the Great, king of Syria, who was equally anxious with himself to get rid of Achæus (v. 107). Several years afterwards, when the Romans began to take part in the affairs of Greece, and sided with the Ætolians, the weaker party, against Philip, king of Macedon, the king of Pergamus was invited to join the alliance (B.C. 211); but we do not find that he took any active part till some time afterwards (B.C. 208), when he was appointed joint prætor of the Ætolians with their general Pyrrhias. He sent some auxiliaries, and towards the end of autumn made his appearance at Ægina with his fleet. Here he passed the winter; but as soon as the season permitted, he landed on the continent; and having taken the city Opus, the capital of the Locri Opuntii, with the consent of the Romans, allowed it to be sacked by his soldiers. While he was employed here in collecting tribute from the surrounding chiefs, he narrowly escaped being taken prisoner by Philip, who suddenly made his appearance, and cut off a considerable number of his men. Attalus escaped by dishonourable flight; and hearing that Prusias, king of Bithynia, had passed the frontiers of his kingdom, he left the Ætolians to their own resources, and returned to Asia. (Liv. xxvii. 30, 33; xxviii. 7.) Peace was soon afterwards concluded between the Ætolians and Philip, which was also acceded to by Attalus. When the Romans were ordered (B.C. 205), by an oracle from Delphi, to bring the Idæan Mother Cybele from Pessinus to Rome, it was to the king of Pergamus that an embassy was sent, and through his means the black stone representing the goddess was procured and conveyed to Rome (xxix. 11, 12). Peace, however, did not continue; for we find the Rhodians leagued with Attalus (B.C. 201) against Philip in the sea-fight of Chios. Attalus behaved with great bravery on this occasion; but having pursued a Macedonian vessel too far, he was forced to abandon his ship and escape by land. This gave Philip a pretext to claim the victory, though his loss was greater. Philip afterwards resumed the war, and besieged Attalus in Pergamus, but without being able to take the city. Philip having retired, Attalus passed over to Athens (B.C. 200), where he was received with great honour, and renewed his alliance with that people. He joined the Romans with a considerable body of troops; and the confederates laid siege to Oreum, a strong city of Eubœa, which they took after an obstinate resistance. While Attalus was thus engaged at a distance from his kingdom, Antiochus, king of Syria, took the opportunity of attacking it; but he was induced to withdraw by a strong remonstrance of the Romans. Attalus continued to assist the Romans against Philip, and (B.C. 197) he appeared in the assembly of the Bœotians, with a view of detaching them from the cause of Philip. In the midst of an eloquent harangue, which he was pronouncing with great force, he was seized with apoplexy; and though he lingered long enough to enable him to be conveyed to Pergamus, he died within a few weeks, in the seventy-first year of his age, having reigned forty-four years. (Liv. xxxi. 14, 46; xxxii. 8; xxxiii. 2, 21.) He left, by his wife Apollonis, four sons, Eumenes, who succeeded him; Attalus, who succeeded his brother Eumenes; Philetærus; and Athenæus.

ATTALUS II., named Philadelphus, from his affection to his brother, was born B.C. 220: he was the second son of Attalus I., and succeeded to the throne of Pergamus on the death of his brother Eumenes (B.C. 159), as the son of that prince, also called Attalus, was of too tender an age to hold the reins of government. He attempted to restore Ariarathes to his kingdom of Cappadocia, in which he seems to have been successful. (Polyb. xxxii. 23.) He pursued faithfully the policy of his family, in maintaining an intimate alliance with the Romans; and he was treated by them at all times with respect and confidence. Prusias, king of Bithynia, made an attack on the territory of Attalus (B.C. 156), and even laid siege to Pergamus itself; but, frightened by the threats of the Romans, he was compelled to desist, and to indemnify Attalus for the loss he had sustained. This war, however, was carried on for several years; the leading facts may be found in Appian's *Mithridatic War* (c. 3-7; also Polyb. xxxii. 25, 26, xxxiii. 1, 6, 10, 11). Five years afterwards (B.C. 149) we find Attalus assisting Nicomedes against his father Prusias (Strab. xiii. 624); but though he lived to the advanced age of eighty-two years, we are unable to mention any circumstances connected with the latter years of his reign, except that he was so much under the influence of his minister Philopœmen, that the Romans used in jest to inquire from those returning from Asia whether Attalus was still the chief favourite of Philopœmen. (Plutarch. *Mor.* p. 792.) He was the founder of several cities, of Philadelphia in Lydia (Steph. Byz.), and of Attaleia in Pamphylia (Strab. xiv 667); and it was probably this king who was so fond of collecting works of art, that he gave one hundred Attic talents for a painting of a sick man by Aristides the Theban, the contemporary and rival of Apelles. (Plin. vii. 38, xxxv. 9) He was also the inventor of a kind of embroidered hanging or tapestry (viii. 48).

ATTALUS III, named Philometor, from his affection towards his mother, was the son of Eumenes II. He succeeded (B.C. 138) to the throne of Pergamus on the death of his uncle, Attalus II.; but he is little known to us, except for the madness and extravagance of his conduct. His reign was chiefly memorable for the murder of his friends and relations. At last, seized with feelings of remorse, he inflicted on himself every sort of penance which the most gloomy superstition could invent. He finally gave up all care of public business, and devoted his time to gardening, with which he became so well acquainted, that he wrote a work on the subject, which is recommended by Pliny (xviii. 4), Varro (*R. R.*, lib. i. 1), and Columella (*R. R*, lib. i. 1). Having engaged with great eagerness in the erection of a sepulchral monument to his mother Stratonice, daughter of Ariarathes, king of Cappadocia, he exposed himself to the violence of the sun's rays; and having been seized by a fever, he died, after a reign of five years, B.C. 133, leaving in his will the expression '*bonorum meorum Populus Romanus hæres esto,*' thereby making the Romans the heir of his moveable property, but which they cunningly interpreted to mean the kingdom of Pergamus. (Justin. xxxvi. 4: Diodor. Sic. xxxiv., vol. x. p. 122, ed. Bip.: Plin. xxxiii. 11.) The kingdom was claimed by Aristonicus, an illegitimate son of Eumenes II., and he bravely maintained the contest for some time: but at last, being defeated and taken prisoner, he was carried to Rome, and strangled in prison, B.C. 129. The kingdom of Pergamus was from this time the Roman province of Asia. (See Clinton's *Fasti Hellenici*, vol. ii.)

ATTALUS, a senator of Rome, under the reign of Honorius, was sent by the Romans to that emperor at Ravenna, to represent to him the difficult situation of the capital, threatened at that time by Alaric, and to advise him to fulfil the conditions of a treaty which he had concluded with that Gothic chief: but the weak and faithless Honorius refused, and Alaric being joined by his brother-in law, Ataulphus, laid siege to Rome. Attalus was then prefect of Rome, but he seems to have had already a good understanding with Alaric, they being both of the Arian persuasion, and Attalus having been christened by a Gothic bishop. Alaric proclaimed Attalus emperor instead of Honorius, and he required the Romans to swear allegiance to him, A.D. 409. Attalus then went with an army of Romans and Goths to besiege Honorius in Ravenna, when the emperor sent him messengers offering to associate him in the empire, but Attalus refused to listen to the proposals, thinking himself possessed already of the real power, and in no need of Honorius's consent. Attalus, however, having opposed Alaric in some of his views, was immediately deposed by the Gothic chief as a presumptuous, incapable person. After this, Alaric again besieged Rome, took it, and gave it up to pillage in August, 410. Upon Alaric's death, Attalus followed the fortunes of his successor, Ataulphus, whom he accompanied into Gaul. When, in 414, Ataulphus married Placidia, the sister of Honorius, in the town of Narbo, Attalus sang an epithalamium which he had composed for the occasion. Ataulphus seeing Honorius persisting in his hostility to him, proclaimed Attalus emperor once more; but his restored dignity was merely nominal. After Ataulphus's death, his successor, Vallia, having concluded peace

with Honorius, Attalus endeavoured to escape the emperor's vengeance, but was taken at sea, and, by Honorius's order, confined in the island of Lipari, after having had the fingers of his right hand cut off, in order to prevent him from being able to write. Attalus was afterwards recalled to Rome, where he died in obscurity. (Zosimus, Orosius, and Gibbon.)

ATTAR, or OTTO OF ROSES, an essential oil obtained in India from the petals of the *rosa centifolia* and *sempervivens*; for this purpose a cask or glazed earthen jar is filled with the rose leaves carefully separated from the calyxes, and spring water poured in just sufficient to cover them; the vessel with its contents is then set in the sun for two or three days, and taken under cover during the night. At the end of the third or fourth day, small particles of yellow oil will be seen floating on the surface of the water, which in the course of a week will have increased to a thin scum; this is taken up by a little cotton tied to the end of a stick, and squeezed into a small vial. (Aikin's *Dictionary of Chemistry*.)

This oil is a well-known perfume; but the odour is agreeable only when diffused, being too powerful when it is concentrated. According to Saussure, the attar is a mixture of two oils, one of which is solid, and the other fluid, at the usual temperature of the air: they may be separated by washing with alcohol, which does not dissolve the concrete oil at a low temperature; or by pressure between folds of paper, which absorbs the fluid oil. By the latter process, three parts of the common yielded one part of the concrete oil.

Attar of roses liquefies at about 85° of Fahrenheit, and the solid oil at about 91°; the latter crystallizes by cold into brilliant white transparent laminæ of the consistence of bees' wax. The density of attar of roses rendered fluid at about 90°, compared with water at 60°, is 0.832, which, according to M. Saussure, is less than that of any other essential oil that he examined; the concrete oil, when fused, is even lighter than this.

The concrete essence is very slightly soluble in alcohol, 1000 parts of the density of 0.806, taking up only two parts of it at 57° Fahrenheit, while the same quantity of alcohol dissolves seven parts of the attar, and the fluid portion is still more soluble.

Saussure observes that the concrete oil burns in oxygen gas with a sort of explosion, which he has never observed to so high a degree in any other oil. By analysis the attar was found to consist of

Carbon . . .	86.743
Hydrogen	14.889
	101.632

Saussure observes that the most remarkable circumstance attendant upon this analysis, is its close resemblance to that of olefiant gas, which is, carbon 85.71; hydrogen 14.29. Indeed these bodies may be considered as what are now termed isomeric compounds.

ATTERBURY, FRANCIS, bishop of Rochester in the reigns of Queen Anne and George I., was born on the 6th of March, 1662, at Milton, near Newport Pagnel, in Buckinghamshire, of which parish his father was rector. He was educated at Westminster, and elected student of Christ Church, Oxford, in 1680. According to Wood, he took the degree of bachelor of arts in 1684, and that of master in 1687. In that year he first appeared as a controversial writer in an answer to *Considerations on the Spirit of Martin Luther, and the Original of the Reformation*; a tract published under the name of Abraham Woodhead, an eminent Roman Catholic, but really written by Obadiah Walker, master of University College. Bishop Burnet, in his *History of his own Times*, ranks this vindication amongst the most able defences of the Protestant religion. Atterbury himself, on his trial, appealed to this book to exculpate himself from the suspicion of a secret leaning towards popery. The exact time of his taking orders is not ascertained; but on his father's death, in 1693, he applied for the rectory of Milton, the place of his birth, and at that time the ultimate object of his ambition. The preferment was, however, given to Dr. Wotton. Atterbury had long been weary of a college life, and on this disappointment he sought for popularity and promotion on the more stirring theatre of the metropolis. Here his talents for the pulpit soon became conspicuous: he was speedily appointed one of the royal chaplains in ordinary, and was elected preacher of Bridewell, and lecturer of St. Bride's. To his sermon on the *Power of Charity to cover Sin*, Hoadly published *Exceptions*, which Atterbury did not, and perhaps could not, answer. Another sermon, entitled *The Scorner incapable of True Wisdom*, was warmly attacked on account of a supposed insinuation against Archbishop Tillotson's orthodoxy. In the year 1698 appeared Mr. Boyle's *Examination of Dr. Bentley's Dissertations on the Epistles of Phalaris and the Fables of Æsop*. Though this work was published under Boyle's name, it is shewn by Bishop Monk (*Life of Bentley*) that Atterbury had the chief share in the undertaking, and in fact wrote more than half the book. Whatever credit we may give Atterbury for ingenuity and humour, this work proves that he had not much learning.

In the year 1700 Atterbury engaged in a long controversy with Dr. Wake, afterwards archbishop of Canterbury, and others, concerning the rights, powers, and privileges of convocations. Dr. Wake asserted the authority of Christian princes over their ecclesiastical synods, with especial reference to the convocations of the English clergy. Atterbury took the opposite side of the question, in a rough and acrimonious spirit, but with much ingenuity. Stackhouse, in his *Memoirs*, says, that Dr. Atterbury, in his controversial writings, dealt out his wit and satire at such a rate as contributed very little to the establishment of truth. However that may be, his zeal for the interests of his order procured him the thanks of the Lower House of Convocation, and the degree of Doctor in Divinity, without exercise or fees, from the University of Oxford.

On the accession of Queen Anne, in 1702, Atterbury was appointed one of her chaplains in ordinary, and in 1704 advanced to the deanery of Carlisle. His characteristic impatience broke out remarkably on this occasion. He took out his instruments before his predecessor had resigned. Dr. Nicholson, compiler of the *Historical Library*, was then bishop of Carlisle, and owing to a previous misunderstanding, fully detailed by Stackhouse, was not kindly disposed towards the new dean, and required the preceding dean's resignation to be produced. When produced, it was found to be dated a month subsequent to Atterbury's collation, which was therefore void. Atterbury attempted, but without success, to procure from his predecessor, and afterwards from an officer in Chancery, a clandestine alteration of dates. As the preferment was duly bestowed upon him, no corrupt motive (beyond a desire to save trouble or expense) can be assigned for this extraordinary proceeding; but it indicated a lax adherence to veracity, and was a scandalous contempt of public decency. He was at length admitted to his deanery without this error of date being rectified.

In 1706 Atterbury was engaged in a dispute with Hoadly concerning the advantages of virtue with regard to the present life. In a funeral sermon he had asserted, that if the benefits resulting from Christianity were confined to our present state, Christians would be, of the whole human race, the most miserable. Hoadly, on the contrary, maintained, in a printed letter to Atterbury, that it was a point of the utmost importance to the Gospel itself, to vindicate the tendency of virtue to the temporal happiness of man. Atterbury defended his positions in a preface to the second edition of his sermon; to which Hoadly published a rejoinder. In 1707 Atterbury was made canon in the cathedral of Exeter; and in 1709 his eloquence raised him to the preachership of the Rolls Chapel. In the same year he was involved in a fresh controversy with Hoadly, concerning passive obedience. In 1710 Dr. Sacheverell's trial took place; and it is stated in Boyer's *History of the Life and Reign of Queen Anne*, that the defence was generally thought to have been drawn up by Dr. Atterbury, in conjunction with Dr. Smalridge and Dr. Freind. In the same year Dr. Atterbury was chosen prolocutor to the lower house of convocation. In 1711 he was chiefly concerned in drawing up a representation of the present state of religion, which Bishop Burnet denominates "a most virulent declamation, defaming all the administrations from the time of the Revolution." His draught was agreed to by the lower house; but the bishops ordered another to be drawn in more moderate terms. The more violent representation was not presented to the queen, but it was printed and circulated. In 1712 Atterbury was made dean of Christ Church, Oxford. Owing to his imperious temper, the flames of discord soon broke out in the College, and his removal was thought necessary for the restoration of peace. Dr. Smalridge, his successor in two of his preferments, complained of being

compelled to carry water after him, to extinguish the flames of his litigiousness. In 1713, on Lord Oxford's recommendation, he was promoted to the bishopric of Rochester, and the deanery of Westminster. In describing his conduct at this period, Stackhouse quaintly observes, that the eyes of his understanding were blinded, by Lambeth being opposite to Westminster. It has been generally thought that he aspired to the primacy, and that he probably would have attained it had a vacancy occurred during the queen's lifetime; but with her death his hopes of further advancement fell to the ground. He attempted to gain the good graces of George I.; but his overtures were rejected with marks of personal dislike. Atterbury commenced hostilities by refusing to sign the bishops' declaration of fidelity, during the rebellion of 1715. At his instigation Smalridge also refused to sign. The futile plea alleged was, offence taken at the reflections cast by implication on the high church party. In the House of Lords, Atterbury drew up some of the most violent protests against the measures of the court and ministry. Thus far his opposition, whether discreet or otherwise, was constitutional; but he incurred the suspicion of being deeply concerned in a succession of plots for the restoration of the ejected family. The report of a secret committee of the House of Commons charged him with a treasonable correspondence, for the purpose of raising insurrection in the kingdom, and procuring invasion from abroad. The evidence against him was considered to justify his apprehension and committal to the Tower, in August, 1722. On his appearance before the council he behaved with calmness, and as Stackhouse, who was no partisan of the bishop, expresses it, with becoming magnanimity. He was treated with the respect due to his station and talents. In the course of the ensuing March, a bill of pains and penalties against him was brought into the House of Commons. Atterbury raised a difficulty about appearing either in person or by counsel, and this point of privilege was warmly debated in the Upper House, but to his vexation it was decided by a large majority that the bishop being not a peer of the realm, but only a lord of parliament, might make his defence before the Commons without any detriment to the honour of the peerage. He however acquainted the Speaker by a letter, that he would give the Commons no trouble, but make his defence in another house, of which he had the honour to be a member. The penalty contained in the bill was, that he should be deprived of all his ecclesiastical offices, and for ever incapacitated from holding any civil employment within the king's dominions, or discharging any spiritual functions, that he should suffer perpetual exile, and if found within the realm after a certain day, should be treated as a felon, and excluded from the benefit of the royal prerogative of pardon. The bill may be found in the Abstract of the Acts of that session. On the first reading in the Lords, the bishop on his passage to Westminster was insulted by the mob; but a guard was appointed for his future protection, and for the remainder of the week through which the proceeding lasted, the populace was softened into pity. His speech in his own defence was both argumentative and eloquent; his demeanour was firm and collected. After a long and warm debate, the bill was passed by a majority of 83 to 43. It is said to have received a reluctant assent from the king. This affair at the time excited the vehemence of party, and was viewed in opposite lights by the friends and enemies of the government. The commitment of a bishop for high treason had rarely taken place since the Reformation, and occasioned various speculations, according to the affections and prejudices of the people. The dispassionate view of the case seems to be, that the bishop was really guilty of the political offence laid to his charge, but that proofs neither sufficiently strong nor strictly legal could be adduced, and that the proceeding was in its nature dangerous and unconstitutional. A strong protest was entered on the Journals of the Lords. (See the *Historical Register*, and *Debates of the House of Lords*.)

In June, 1723, the bishop quitted England for Calais, accompanied by his daughter, Mrs. Morrice, who was allowed to attend him on his travels; and, through the hands of her husband, he was permitted to maintain an intercourse by correspondence with his native country. After a short stay at Brussels he settled finally at Paris, where he resided till his death, softening the severity of his banishment by study, conversation, and correspondence with learned men. In a collection of the bishop's original letters, furnished by M. Thiriot, there is much able criticism on several French authors. His avowed wish now was to live to himself and a few friends; but still, when treason lay in his way, he could not help taking it up. In 1768 a correspondence which took place between the bishop and his friends in 1725 was published in Edinburgh, the authenticity of which has never been questioned. From these letters it is evident that he was deeply implicated in the abortive schemes for raising another rebellion in the Highlands of Scotland. In 1729 his daughter died: he was deeply grieved, but bore the calamity with resignation. He died at Paris on the 15th of February, 1731, and was privately buried in Westminster Abbey.

The philosophical calmness displayed by Atterbury in his letters to his friends seems altogether inconsistent with the headlong turbulence of his party zeal, and probably was assumed to cover an infirmity of which he was conscious. Stackhouse says, that 'His notions were a little singular, and his temper of mind somewhat too warm for this cold and torpid climate. His temper was chiefly made up of irascible qualities; his resentment of injuries was quick and lasting.' His ambitious character cannot be better illustrated than by an expression of his own: he was in the habit of calling the instruments of his advancement his *scaffolding*. A striking instance of the bishop's Jacobitism is to be found in Dr. Birch's manuscript papers. 'Lord Harcourt declared that on the Queen's death the bishop came to him and Bolingbroke, and said nothing remained but to proclaim King James. He further offered, if they would give him a guard, to put on his lawn sleeves and head the procession.' (See also Monk's *Bentley*, ii. 257.)

Lord Chesterfield told Dr. Maty of a conversation between himself and Pope, importing that when the latter took leave of the bishop in the Tower, Atterbury presented him with a bible as a remembrance. 'Does your lordship abide by it yourself?' 'I do.' 'If you do, my lord, it is but lately,' &c. (Maty's *Memoirs of Lord Chesterfield*.) This anecdote represents a dignitary of the Church as known among his intimate friends to have been, at least in early life, a sceptic. But a single story, unsupported by other facts, and rendered improbable by the general tenor of his conduct, is too slender authority to fasten on Atterbury the imputation of such gross hypocrisy. In his discourses, he treats unbelievers as an ignorant and superficial set of men; and even on the supposition that for sinister purposes he might affect to reprobate persons holding his own private opinions, it appears unnatural that he should undervalue and professedly despise them. And however faulty his ambition may have been, there is no stain on his moral honesty sufficiently strong to justify the conclusion that his professions of religion were hypocritical, or his powerful preaching of its doctrines a mere stepping-stone to preferment.

His character has been drawn by Bishop Smalridge, in a speech on his presentation to the Upper House of Convocation as Prolocutor, with the customary exaggeration of official compliment.

His literary merits are copiously discussed by Dr. Kippis, in his long note at the end of the article Atterbury, in the *Biographia Britannica*.

His fame rests on his sermons, which are both argumentative and unaffectedly eloquent; and on his epistolary correspondence with Pope. His familiar letters, for their ease and elegance, are preferred to the more laboured efforts of his correspondent. As a controversialist, his parts were splendid; but his prejudices were too strong, and his judgment not sufficiently cool to entitle him to a high rank among the enquirers after truth. It was however thought at the time, that no man understood better than he the points in dispute between the Church of England and the Church of Rome, as well as the Dissenters of all denominations.

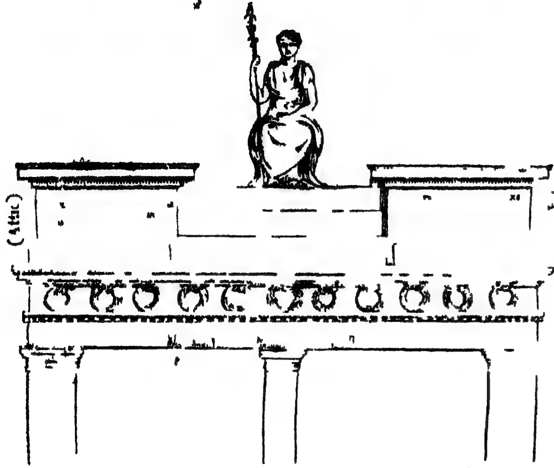
(Stackhouse's *Memoirs of Atterbury, from his birth to his banishment*, published in 1723, under the signature of Philalethes; and with a new Title-page bearing his own name, 1727; Burnet's *History of his Own Times*; *Biographia Britannica*.)

ATTERCLIFFE, a township in the parish of Sheffield, and a mile and a half from that town. The population in 1831 was 3741. [See SHEFFIELD.]

ATTERSEE, The, or **KAMMERSEE**, a large lake abounding in fish, in the centre of the circle of the Hausruck, province of Upper Ens, in the archduchy of Austria. The vale which surrounds it is called the 'Attergau.' Attersee, now a village with scarcely 150 inhabitants,

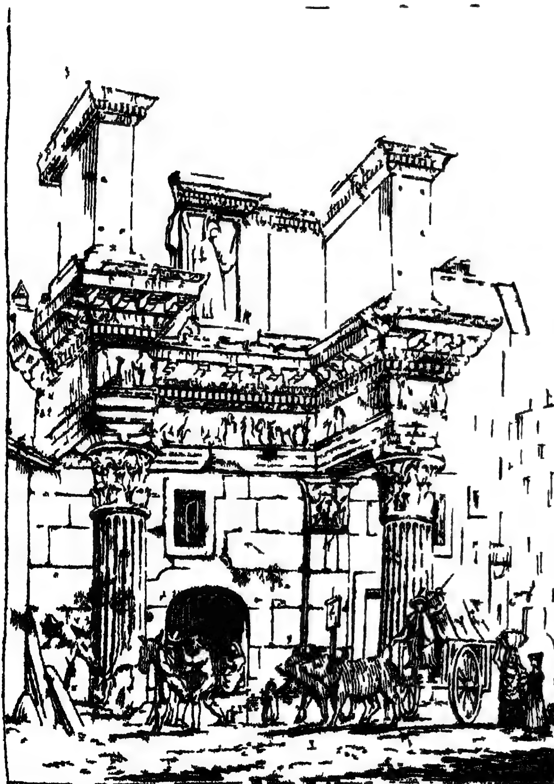
but once the chief town of the district, was formerly a favourite resort of its then owners, the prince-bishops of Bamberg. The lake is about 12 miles in length from north to south, its surface contains 8121 Vienna yochs, or 11,567 English acres, and its south-western extremity is about 21 miles distant from Salzburg. S. Hall places it in 47° 55′ N. lat., and 13° 35′ E. long. The Ager flows northwards out of it into the Traun.

ATTIC, a term in architecture, comprehending the whole of a plain or decorated parapet wall, terminating the upper part of the façade of an edifice. The derivation of the word is uncertain. It appears to have been a generally received opinion that the word was derived from the circumstance of edifices in Attica being built after this manner. There is at Athens a monument, that of Thrasyllus, with an attic over the order of pilasters which form the basement. In the centre there was a colossal statue. [See ATHENS, p. 10.]



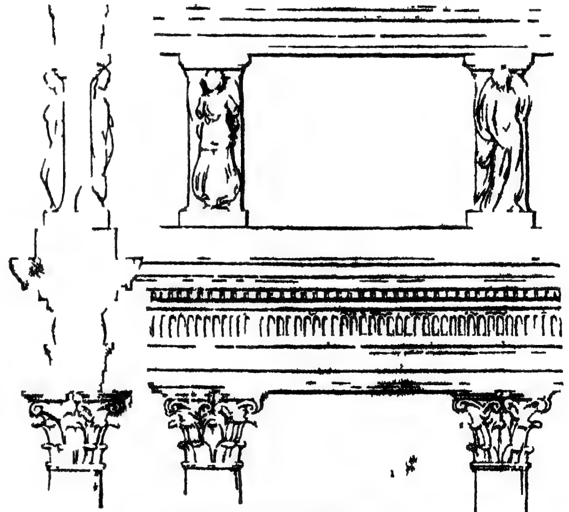
[Upper part of the Choragic Monument of Thrasyllus, with the attic ... [illegible]]

In a note to the second edition of Stuart's *Athens*, published in 1825, the editor is of opinion that this attic was not contemplated in the original design, but added at the date of the two upper inscriptions when Thrasycles was Agonothetes. (See note, p. ...2, vol. ii., second edition of Stuart, 1825.) This example, however, may be taken as the best specimen of a Greek attic which is at present known. In the *Archæologia Londinensis* there is an ingenious, although, as we think, a wrong derivation of the word attic, unless we suppose the word, as we now use it, to have become corrupted. In vol. xxiii. p. 412—414, the word attic is said to be compounded of α privative, and τεῖχος a wall, thus signifying 'without a wall,' or without being in connexion with a wall. The example of such an attic, it is said, is found in all Hypæthral temples, for as the naos, nave or space between the inner ranges of the columns, must not be covered, upper ranges of columns, with a wall above them, must be placed over the lower order of columns to catch the end of the rafter at its highest elevation; an example of this kind of attic may be found at Pæstum, in Italy.


[Part of a Building inclosing the Forum of Nerva at Rome.]

Another example which bears a closer resemblance to the Roman attic, exists in the upper wall of the nave of the Temple of Jupiter Olympius at Agrigentum (see ATLANTES), where there is an entire wall with short pilasters at intervals, in the front of which are figures placed above the pilasters of the nave. Vitruvius and Pliny do not make any mention of, or allusion to, the attic of a building as we understand it at the present day. In the annexed cut we have given a representation of a Roman attic, the only remaining part of a superbly decorated wall enclosing the Forum of Nerva at Rome. This wall was of considerable extent, and was divided at intervals by columns projecting from the wall, over which, as may be seen in the drawing, the attic wall is continued at right angles to the wall forming the enclosure. The attic, also, is a very conspicuous feature in the triumphal arches at Rome, and a necessary one: it was not merely intended as a frame-work for the inscription, nor as a support for statues, but is essential to the proportions of the whole composition.

In all the best examples, and especially in the remains of antiquity at Rome, the attic is decorated with a moulded base and cornice, often with pilasters and figures, as in the arch of Constantine. At Thessalonica, in the Jews' quarter, are the remains of a building called the Incantada, drawn and described by Stuart in the 3rd vol. of his *Athens*. Five Corinthian columns on their pedestals support an entablature; over four of these columns there still exists an attic adorned on each side with figures in alto rilievo. The spaces between the figures are open, and there is a cornice over the figures with a base at their feet; the design and execution of this work are attributed to the period of Roman dominion


[The Incantada at Thessalonica.]

rather than to any other. (Stuart's *Athens*, vol. iii.) At Bourdeaux, a somewhat similar building existed in the reign of Louis XIV., which was destroyed by Vauban to erect the fortifications constructed at that time. Perrault, the architect, made a drawing of the ruin previous to its destruction, from which circumstance the design is now preserved, and may be seen in the recent edition of Stuart's *Athens* (1825). The most remarkable difference between this building and the Incantada is, that in the former the openings in the attic between the figures are arched, while in the latter they are bounded by the straight line of the cornice. The arch in the former proves it incontestably to have been a Roman work; while from the

uncertainty respecting the date and use of the building at Thessalonica, the period of its erection cannot be ascertained

The Italian architects who had studied the remains of antiquity in Rome, and those who followed in their school, usually employed an attic in their designs, as may be seen by a reference to their works, and more especially to the designs of Palladio, entitled '*Le Fabbriche e i disegni di Andrea Palladio raccolti ed illustrati*, da Ottavio Bertotti Scamozzi, 1776.' The attic is in such common use, that there are few public buildings in London without it. Somerset House, in the view towards the street, may be taken as offering a very fine example of this feature of an edifice Opinions differ as to the Attic some consider it a deformity, and at least only to be tolerated where it is unavoidable. They would accordingly confine it nearly altogether to domestic architecture

ATTIC, the upper room or rooms of a house, with or without a parapet wall in front It is possible that the parapet-wall which corresponds with the attic wall in architecture, may have given the name to the room or rooms in the upper stories or roofs of houses

ATTICA (properly Ἀττική Attike), one of the political divisions of antient Greece The origin of the name is doubtful, some (Strabo, p 391) have derived it from the word Akte, a term expressive of the form of the coast line [See ACTIUM] From Akte the word Aktike might be regularly formed, and afterwards corrupted into Attike But it is perhaps more likely that Attike contains the element Atth or Ath which we observe in the words Atthis and Athenae

Attica has the form of a triangle two sides of which are washed by the sea and the third is protected by mountains The mountain range which descends from northern Greece forms a knot close upon the Corinthian gulf at the huge mass of Cithaeron, from which two chief branches are given out. One takes a general S W direction under the antient name of the Oneian mountains filling up the greatest part of the narrow isthmus between the N E angle of the Corinthian gulf (here called the Alcyonian) and the Saronic gulf its termination on the E of the Saronic gulf is at the Scironian rocks (Kaki-skala) which press so closely on the coast as to allow no road between them and the sea (Strabo, p 391) The other branch which has a general eastern direction and is called the range of Parnes, separates Attica from Boeotia and the valley of the Boeotian Asopus this range terminates abruptly to the north of Rhamnus, on the sea coast opposite Euboea

According to the late survey of Capt Copeland, the termination of the range of Parnes may be placed at Cape Kalamo, on the Euripus, opposite to Chalcis in Euboea above this cape to the west rises an eminence (probably the antient Phelleus) to the height of 2038 feet, and two other points in the range of Parnes (advancing westward from the supposed Phelleus) are respectively 2758 and 4115 feet high A considerable part of Parnes is covered with forests of pine, oak, arbutus, and wild pear trees

The range of Parnes on the north and the Oneian range on the north west completely shut in the Attic peninsula under which term we include also the small plain of Megaris There are two roads from Corinth into the Megaris one which is the shorter route, runs across the mountains at Derveni, the other runs to Calamaky on the Saronic gulf and thence follows the Scironian pass, which at present only admits a single vehicle for the greatest part of the way This Scironian pass, which is the steep escarpment of the mountains which terminate on the coast, is four leagues in length (Thiersch, II 32) Megaris formed one of the four antient divisions of Attica, and after the death of Pandion it fell to the lot of his son Nisus. When the Dorians invaded the Attic peninsula in the reign of Codrus, they were only able to get possession of the Megaris, which, however, they kept, and founded Megara, a Dorian city, on the confines of their Ionian neighbours of Attica The history of Megaris therefore requires a separate consideration [See MEGARIS]

A natural boundary separates Megaris from Attica properly so called. A range of high land descends from the N W. boundary of Attica and terminates on the west side of the bay of Eleusis in two summits (Strabo, p. 395) formerly called Kerata, or the Horns, and now Kandili, in 38° 1′ 53″ N. lat, 23° 28′ 8″ E. long. (Captain Copeland) Another mountain range, which branches out from Parnes and has a general southern direction, terminates on the east side of the bay of Eleusis, and on the narrow strait which here separates the main land from the island of Salamis. The antient name of this range was Aegaleos, a term also applied to its southern extremity which abuts on the coast, and under which Xerxes sat to witness the sea fight of Salamis. (Herod viii 90) The name Corydallus was given to a part of this range which terminates near the old ferry (Strabo, p 395.)

Between the range of Kerata and that of Aegaleos lies the *Eleusinian Plain*, one of the natural divisions of Attica

The *Athenian Plain* is bounded by the range of Aegaleos on the west. The eastern boundary is formed by the mountains which run southward from Parnes, and forming two masses terminate respectively in Cape Zoster, and in the rocky promontory of Sunium, which is in 37° 39′ N lat, 24° 0′ 58″ E long Thus the transverse ranges of Kerata, Aegaleos, and the mountains on the east side of the Athenian plain, mark out this province into three chief divisions of which the third lies between the eastern boundary of the Athenian plain and the sea

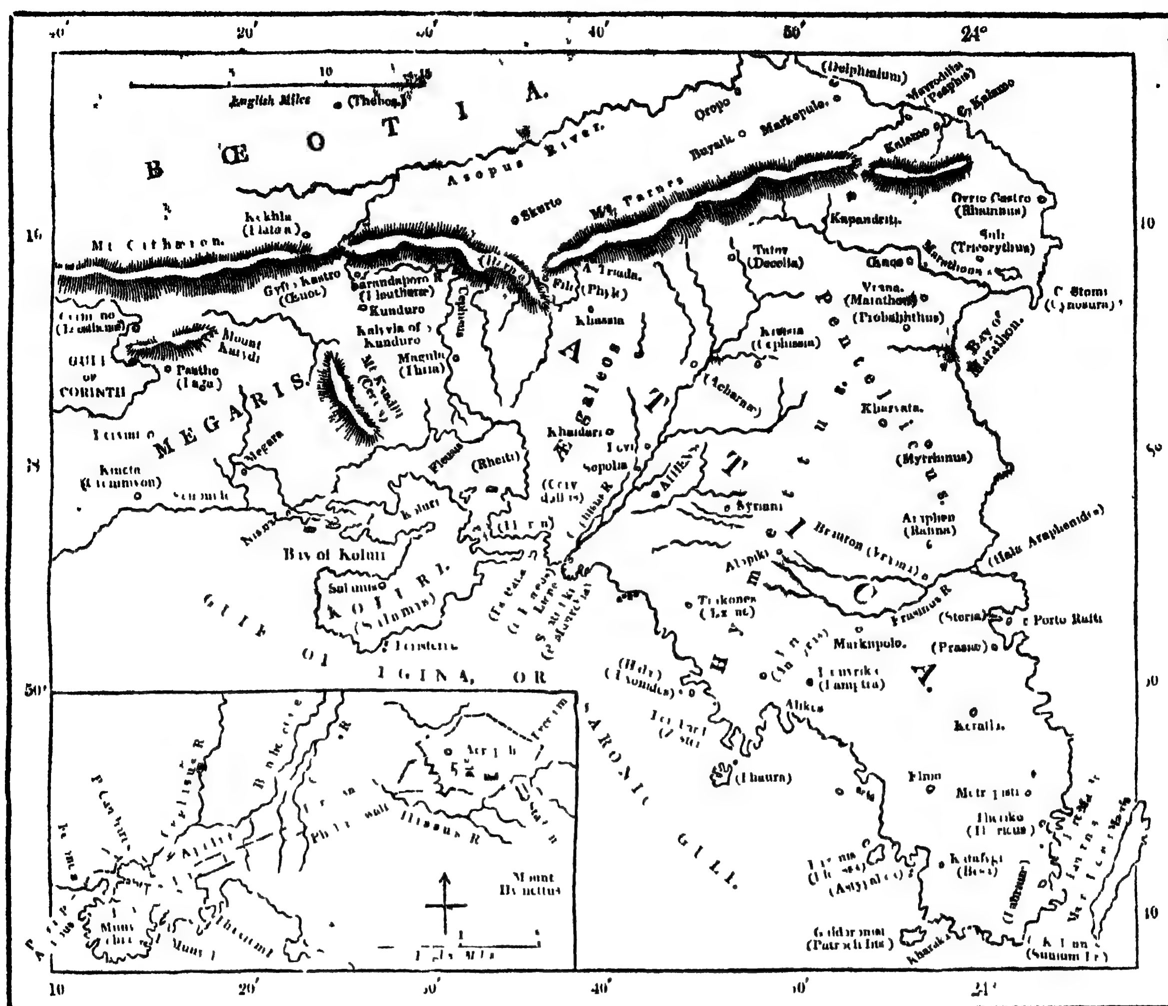
There is no general name for the mountains which form the eastern boundary of the Athenian plain. The northern part appears to be the antient Brilessus (Leake), better known at present under the name of Pentelicus The highest part of this range, which lies N E of Athens, and near the eastern shore of Attica is 3584 feet Pentelicus consists of a mass of fine grained white marble which supplied the materials for the public buildings of Athens The direction of this mountain mass is about S E towards the coast to which it approaches within a few miles north of the Ilissus it is separated from the range of Hymettus by a depression about two miles in length Hymettus the highest point of which is 3506 feet forms the eastern boundary of the Athenian plain down to the western coast It is divided into two parts by a depression the northern or greater Hymettus is now called Telo Vouni and the southern which is much lower the less antive name Anydrus or Waterless is now called Mavro Vouni

A hilly district runs along the coast in a S E direction from the southern extremity of Hymettus to the mountains of Laurium where the silver mines were worked and to the promontory of Sunium this hilly country is runs northward as far as the antient Brauron which is near the eastern coast and probably on the Erasinus The whole of this barren district was called by the general term of Paralia or the Sea Coast District The small extent of level or undulating country bounded by Pentelicus on the north Hymettus on the west the hills of the Paralia on the south and the sea on the east was named Mesogaea or the Central Land, a name which is retained in the slightly corrupted form of Mesogia. One road from the Athenian plain into the Mesogaea runs in the depression between the two parts of Hymettus another road from the upper valley of the Cephisus leads into the Mesogaea between the heights of Pentelicus and the northern Hymettus That mountainous part of Attica which occupies the N E angle of the province, between the southern extremity of Pentelicus the range of Parnes, and the sea, was called Diacria a name which implies a region interspersed with rugged eminences The only level part of this district is the small plain of Marathon which opens to the sea

It appears, then, that Attica Proper, with respect to its plains is distributed into four natural divisions 1 The Eleusinian or Thriasian Plain 2 The Athenian Plain; 3 The Mesogaea, 4 The Plain of Marathon The area of Attica may be roughly stated at about 700 English square miles, not including Salamis, which perhaps contains about forty square miles Though we now know the coast line of Attica with accuracy we are still without that exact knowledge of the inland boundaries which would enable us to avoid considerable error in estimating the surface but taking it at 700 square miles, it is nearly equal to that of Worcestershire (718 square miles), and only about one eighth of that of Yorkshire.

The plain of Peiraike or Oropia, lying between Parnes, the Asopus, and the sea, contained the town of Oropus though physically separated from the rest of Attica, and properly considered a part of Boeotia, this district generally belonged to the Athenians To settle all disputes, Philip gave it to the Athenians after he had taken Thebes

The sea coast of Attica begins on the west side with the fine bay of Eleusis, formed by the receding coast of the main land and the irregularly-shaped island of Salamis, which lies in front of it. Two narrow channels, one on the



[The antient names on the map of Attica are in brackets.]

east and the other on the west side of the island, open into this deep landlocked bay, which presents the appearance of a great lake; the channel on the west is narrower and more intricate than the eastern, which has sufficient depth of water for any ships. The bay itself is a capacious haven, with a great depth of water. The termination of the range of Ægaleos on the Attic coast forms a hilly peninsula opposite the eastern end of Salamis; here Strabo places the ferry, to which he assigns a breadth of two stadia, or about 1250 English feet, but the width of the narrowest part of the channel is at least 1250 yards. The small rocky island of Psyttaleia, the name of which is connected with the great sea-fight of Salamis (Herod. viii. 95), lies at the entrance of the eastern passage into the bay of Eleusis. [See SALAMIS.]

Proceeding along the coast we come to the ports of Athens, already described [see ATHENS]; to the promontory Colias, on the east side of the Phaleric bay; and to a low marshy shore, or lagoon, occupying a large part of the coast between Colias and the Cape of Halæ, now Cape Pavlo. Between Halæ and Zoster, which forms the most remarkable projection on this coast, are some small rocky islands (Leake), which the Persian ships, when flying from the battle of Salamis, at first sight mistook for the enemy's fleet; but Herodotus (viii. 97, 107) says, though he probably might be mistaken, that the heights which appeared like ships were on the mainland. The position of Cape Astypalæa seems to be indicated by the island of Eleussa (now Lagonisi), which lies in front of it. The extreme point of Attica, Cape Sunium, is now called Colonnes, from the fourteen remaining Doric columns of white marble, which adorned the temple of Athena of Sunium, the tutelary goddess of the land. Sunium was made a strong fort (Thucyd. viii. 4), and the walls are still traceable in all their circuit except in some parts, which, owing to the precipitous character of the rock, needed no defence. The circuit of the enclosure is above half a mile; the temple occupied a small part of it close upon the bold promontory, and appears to have had Propylæa, like the great temple on the Acropolis. The length of the west coast of Attica from the Horns to Colonnes is about sixty miles. Strabo states the distance from Peiræus to Sunium at 330 stadia, which is very near the true distance of about forty miles.

The east coast of Attica from the small bay of Sunium northwards is rugged and barren, rising into hills covered with trees and brushwood; the hills between Sunium and Thoricus are the silver-mine district of Laurium. Between Sunium and Thoricus is the bay of Panórimo, the antient Panormus. Thoricus, now Theriko, with its port Mandri, was once a demos of some importance: the traces of the fortifications (Xen. *Hellen.* i. 2, 1), the ruins of a theatre, and of a quadrangular building which was surrounded by a Doric colonnade, still exist. Dhaskalio is probably the port of the antient demos of Potamus. Rafti, farther north, a port of considerable size, appears to have belonged to the antient Prasiæ. On a small island in this bay there is a colossal statue of white marble in a sitting posture, to which the modern name of Raftes, 'the tailor,' has been given, and hence transferred to the bay. The Erasinus, the only stream that waters the Mesogaia, runs past Vraona, supposed to be Brauron, and enters the sea three miles north of Port Rafti. About ten miles north of the mouth of the Erasinus some offsets of Pentelicus come close upon the coast, forming the S. and S.W. boundary of the plain of Marathon; the north and north-eastern boundary seems to be formed by the offsets of Parnes and Cape Stomi, conjectured by Leake to be the antient Cynosura. The name Marathon, which originally belonged to one of the four towns which formed the Tetrapolis, was afterwards used as a general name for the whole district. [See MARATHON.] North of Marathon, on the coast, we find at Ovrio Castro the remains of the antient Rhamnus, and of the temple of Nemesis. Parts of a colossal figure found there are supposed to be the remains of the statue of Nemesis, which was the work of Phidias (Pausan. i. 33). The words of Pausanias seem to imply

that there was a road along the coast from Rhamnus to Oropia; this road must have passed Psaphis, which Col. Leake would place at Calamo. The coast line from Sunium to Calamo is about sixty miles, or very near it, which is the same length that we have assigned to the western coast; it happens, also, that the direct distances from Sunium to the Horns and Calamo respectively are very nearly the same.

We shall now make a few remarks on the two great plains of Attica, the Eleusinian and the Athenian.

We have preferred the name of Eleusinian for the western plain of Attica, though the chief part of it is called the Thriasian by antient writers, from the demos of Thria. The range of Ægaleos formed a natural limit between the Athenian and Eleusinian plains, and, as far as we can follow the obscure traces of old traditions, the Eleusinians, in the earliest history of Attica, were a community quite distinct from the Athenians, and sometimes at war with them. The fertile Thriasian plain extended between the range of Ægaleos and Eleusis along the borders of the bay, and to the north of it. The Sacred road from Athens to Eleusis, after crossing Ægaleos by the narrow pass where the modern convent of Dhafni stands, came down on the east coast of the bay of Eleusis, near the Rheiti or salt ponds, whose fish formed a part of the revenue of the great temple of Eleusis. [See ELEUSIS.] This lagoon, or at least one of them, seems marked in the recent survey, as in some measure communicating with the water of the bay. From the neighbourhood of the Rheiti the Sacred road ran in the rocks above the Rheiti to Eleusis, from which town the road continued, as it now does, below the Horns on the west side of the bay to the town of Megara. When Attica was invaded on the west, the fertile plain of Thria was the first to suffer from the ravages of an enemy. (Thucyd. ii. 19.) We cannot determine in what part of the Eleusinian plain we must look for the Rharian plain; some modern writers have placed it to the west of Eleusis.

Attica is a dry country, and where the soil is not irrigated, it is generally unproductive. Two small streams water the Eleusinian plain: one, called the Cephisus, descends from the great mountain of Cithæron, through the narrow plain of Eleutheræ, into that of Eleusis; the other small stream rises near the pass of Phyle in the range of Parnes, and runs through the Thriasian plain towards the Rheiti. The remains of an arched aqueduct intended to supply Eleusis with water are still seen stretching across the plain towards Eleusis from the upper course of this latter stream. The Cephisus, though almost dry in the warm weather, brings down from Cithæron a prodigious quantity of water in the wet season, and in antient times mounds were raised to protect Eleusis from those sudden inundations.

The chief river of the Athenian plain is the Cephisus. Its most north-eastern source is at Trinemii (Strab. p. 400), between the northern face of Pentelicus and Parnes; another branch rises on the south face of Pentelicus, and flowing westward joins the main stream north of Athens; other branches rise in the high range of Parnes about Deceleia, and still farther westwards. The Cephisus flows southwards on the west side of Athens, through what was called by distinction The Plain (τὸ πεδίον); its outlet was originally in the bay of Phalerum, and when the long walls were built it was necessary to make tunnels to carry off so much of the river as was not consumed in irrigation. Strabo remarks, 'that the Cephisus is only a torrent stream, and that in summer it fails altogether.' The accounts of this river are somewhat contradictory: that of Thiersch is as follows:—'The Cephisus is anything but a torrent; it springs from copious and beautiful springs, and is never dry. In the autumn of 1831, in the month of November, when the rains had hardly begun, and the dry weather had continued for eight months, it still flowed, and the natives all assured me that it was never without water. During the whole summer it irrigates the two hundred gardens on its banks, and in winter it supplies water for the olive-trees which are planted in these gardens. To conduct the water to the grounds, the inhabitants have made small trenches and ditches; the irrigation takes place on fixed days and hours, so that each garden is watered twice a week.' The same writer informs us, that the irrigation all through Attica is in an excellent condition, and that the valley of the Cephisus, with its noble gardens and antient olive-trees, corresponds exactly to the beautiful description by Sophocles (*Œd. Col.* 685) of the fertility conferred on his native district by the Cephisus. We have already spoken of the Ilissus in the description of Athens: the main branch rises on the north face of the greater Hymettus, from which it takes a turn to the west, and then to the south, running along the east side of Athens. The Eridanus, which joins it near Athens, rises on the western slope of the greater Hymettus, at a place called Syriani; its fountain is in a beautiful spot, surrounded by verdure. In summer, the Ilissus is quite dry in the neighbourhood of Athens; it seems originally to have terminated, where the Cephisus did, in the Phaleric bay. Besides these streams there are only two others worth notice: one is the Erasinus, which flows from the eastern slopes of Hymettus through the Mesogaia into the sea, north of Port Rafti; and the other is the river of the plain of Marathon, which comes from Mount Phelleus.

The range of Parnes stands like a wall between Attica and Bœotia, but the ascent is much greater from the Athenian side; the ascent from the higher level of Bœotia is less difficult. There are several passes through this range, which were formerly of great importance for the military defence of Attica. The most western pass was by the Three Heads, as the Bœotians called it, or the Oak Heads, according to Athenian usage (Herod. ix. 39), which we may conjecture was some remarkable eminence near the defile of Cithæron. This is now called the pass of Kondura, at which place the roads from Megara, Athens, and Eleusis meet, and from this point the road is continued to Platæa and Thebes, through the deep defile near the Three Heads.

The pass of Phyle is about N. by W. of Athens. The fortification, which still retains its name, stands on a steep rock, which can only be approached on the east side, and completely commands the narrow pass. From this elevated fort Thrasybulus and the little band of exiles could view the whole Athenian plain and the Saronic gulf, before they meditated a descent into the low country. Panactum (Thucyd. v. 3. 42), an Athenian fort on the confines of Attica and Bœotia, was possibly connected with some part of this pass, but there seem to be no data for determining its position. The great eastern pass was that of Deceleia (now Tatóy), which runs past 'the solitary church of St. Mercurius, and descends into the Bœotian plain at Buyáti. (Leake.)

On this pass Herodotus (ix. 15) places the demos of Sphendale; and this was the road that Mardonius took when he retreated from Attica: by this pass also the grain imported into Athens from Eubœa through Oropus was carried. (Thucyd. vii. 28.) The highest points of Parnes lie between the passes of Deceleia and Phyle: one of the summits between these two points appears to be that to which we have assigned the height of 4193 feet. Another pass, still more to the eastward, leads from the plain of Marathon, past Capandriti to Marcopoulo in the Oropia.

At a time when this interesting province is beginning to be more completely examined, it is necessary to use existing authorities with more caution than if all prospects of further information were shut out. We shall here state briefly a few facts as to the products of this region which appear to be well established. The great mass of the mountains of Attica are calcareous, but the stone differs very much in quality and colour. The best specimens of white marble from the quarries of Mendeli (the antient Pentelicus) are very white, hard, and fine-grained; but owing to numerous little pieces of flint or quartz imbedded in it, this marble is exceedingly difficult to be worked by the sculptor. Between Pentelicus and Parnes, the mass of rocks appears to be mica slate, which is also the basis of the region of Pentelicus. Marble also was in former times quarried on Hymettus, and, as well as that of Pentelicus, was an article of export: this marble extends to the promontory of Zoster. Near the boundary of Megaris in the Horns, there is an immense deposit of conchiferous limestone, which did not escape the notice of Pausanias (i. 44. 6: see also Gell's *Itin. of Greece*). The silver-mine district of Laurium may probably still be worked to advantage with the aid of modern improvements, for we can hardly suppose that the ore is exhausted. Salt was made in antient times from the salt marshes on the coast. Attica cannot produce much grain in proportion to her surface, and with the exception of some of the best lands, the husbandman will cultivate more profitably the olive, fig, and grape: all kinds of leguminous vegetables can be successfully cultivated on the banks of the Cephisus of the Athenian plain. (Thiersch.) The fragrance and abundance of flowers in Attica has rendered Hymettus noted for its honey, and we find that, when Wheler visited Attica, the monks of Mendeli, a mo-

nastery of Pentelicus, had 5000 hives. Attica is not well adapted for breeding the horse to any amount, nor does the cow in general succeed well either here, or in any of the low hot parts of Greece. The sheep, and especially the kid, formed of old a large part of the wealth of the husbandmen; and in Greece generally at the present day, butter and cheese are solely produced from the milk of the goat and the sheep. The seas round the coast of Attica abound in excellent fish, all the species of which were known to and highly prized by the antient gastronomists; the red mullet caught about Cape Zoster is as much valued as it ever was (Leake), and with the increased demand which will now probably arise in Attica, we may expect to see the rich fisheries of the Attic seas again flourish.

Political Divisions.—If we want any proof as to the remote antiquity of political communities in Attica, and its occupation at some time by a people not of the same Greek stock as those of the age of Pericles, we may find it in the names of mountains, streams, and places. The names of mountains and rivers are in all countries the most permanent memorials of a nation's existence. Many Attic names can be explained from the Greek language as known to us, and others can be traced to personal names which belong to the circle of the Greek mythi. But there still remain many which we can only explain by a comparison of Greek words with those of kindred languages, or which we cannot explain at all: such are Cephisus or Keph-issus, Il-issus, Hym-ettus, Bril-essus or Bril-ettus, Garg-ettus, Parnes (compare Parn-assus), Braur-on, Marath-on, Sunium, &c.

Another proof of the remote antiquity of settlements in Attica is found in the numerous political divisions of which traces remained in the historical period. The oldest political division of Attica known by tradition was that by Cecrops into twelve parts (see Strabo, p. 397), the names of which, with a few exceptions, belong to that class of words which the Greek language cannot explain. The names Cecropia, Deceleia, Eleusis, and several others, included in the twelve, were preserved in the historical period of Attica. Another division into four parts, among the four sons of Pandion (Strabo, p. 392), has a distinct reference to the physical divisions of the Attic peninsula, including in this term Megaris, which, as we have remarked, was the only portion which afterwards fell into the hands of the Dorians. That there is an historical fact contained in the division of the peninsula among the four sons of Pandion appears from there being *three* great natural divisions of Attica after the separation of Megaris, which three divisions formed the groundwork of the three political parties in the time of Pisistratus. (Herod. i. 59.) These parties, as Plutarch remarks (Solon, 13), were in number just as many as the natural divisions of the country: they were the Diacrii or Hyperacrii, the inhabitants of the mountainous N.E. region and the range of Parnes; the men of the Plain (under which name the plain of Athens, and probably the Eleusinian also are included), and the Parali, or inhabitants of the Paralia, a term which we have already explained.

A division into four tribes (φυλαί), and also a division into four castes, is attributed to Ion. The division of the four Ionian tribes remained, as we have observed (see ATHENS), to the time of Cleisthenes, who increased them to ten; and the four castes or classes of Ion were represented in number, though perhaps in no other respect, by the four classes into which Solon distributed the Athenian citizens according to their property. Besides the twelve political divisions of Cecrops, we find another division of four:—Cecropia, Autochthon, Actæa, Paralia: the first two are mythical, and the two last clearly are significant, local names. The name Cecropia, assigned to one of the *four* divisions, and also to one of the *twelve* divisions of Cecrops, existed in the time of Thucydides, and appears to have been applied to a district (as Colonel Leake conjectures) lying in the lower but hilly tract which connects Ægaleos with Parnes (Thucyd. ii. 19): Cecropis was also the name of one of the ten tribes. Four other divisions are also mentioned under the names of Cranais, Atthis, Mesogaia, and Diacris; of which the last two are local denominations. The four divisions are again mentioned under the names of Dias, Athenais, Poseidonias, and Hephæstias, referring to the names of four divinities, including those of Athene and Poseidon, the national gods of the old settlers and the Ionians respectively.

The tribes (φυλαί) established by Cleisthenes were Hippothoontis, Antiochis, Cecropis, Erechtheis, Pandionis, Leontis, Ægeis, Acamantis, Œneis, Æantis. The ten tribes were subdivided into 174 demi or townships, each demos apparently containing a town, or small village. Though the tribes (φυλαί) were local divisions, and though neighbouring demi were generally classed under the same tribe, there are numerous examples of contiguous demi assigned to different tribes; just as we sometimes observe in England a detached part of one county completely imbedded in a different county. The most populous of the Attic demi was Acharnæ. (Thucyd. ii. 19.) Under Macedonian influence two tribes were added, Antigonis and Demetrias; but these were afterwards changed to Ptolemais and Attalis. A new tribe was added in honour of Hadrian.

As to the antient population of Attica, it is difficult to come to any satisfactory conclusion. Mr. Clinton considers, that about B.C. 317 it may have been 527,660, a large population for such a territory (being above 700 to a square mile), even if we take into account that it contained a populous city. The numbers, however, with the exception of the Metœci (who are probably exaggerated in Mr. Clinton's calculation), are fairly deduced from the census of Demetrius the Phalerean, as it is reported in Athenæus (p. 272). The reader is referred to Mr. Clinton's essay for the various arguments. (Appendix to the first volume of the *Fasti Hellenici.*) With respect to some of Mr. Clinton's subsidiary arguments deduced from the area of Attica (which he estimates at 748 square miles, including Salamis) and the amount of its products, we may observe, first, that the area as determined from all maps hitherto published is necessarily incorrect, the coast line having only been accurately ascertained by Captain Copeland in 1830, and the interior boundary line being still very inadequately laid down; and secondly, that the calculations as to the possible or probable production of grain in Attica are at present exceedingly hazardous, and probably far from the truth.

Attica is one of the Eparchies of the actual kingdom of Greece; it contains one city, Athens, and 118 villages. The population is not known.

For more exact information on the physical character of Attica, we must look to the Germans and others at present in the country. Colonel Leake's Essay on the Demi of Attica, in the Transactions of the Royal Society of Literature, is a most excellent and accurate work. The reader may also consult Kruse's *Hellas*, but with caution, and not without the assistance of Leake. See also Thiersch, *De l'Etat actuel de la Grèce*, Leipzig, 1833; the *Unedited Antiquities of Attica:* and Hermann's *Lehrbuch, &c.*

ATTIC DIALECT, a term which is applied to designate one of the varieties of the antient Greek language. We have seen the close connexion and relationship which existed between the old inhabitants of Attica and the Ionians; and in conformity with this fact, we find it stated (Strabo, p. 333) that the Ionic form of the Greek language, or the Ionic dialect, as it is generally called, 'was the same as the old Attic, for the antient Athenians were called Ionians.' But in course of time the language of Athens, which was improved by a great number of writers, gradually acquired a distinct character, and also a decided preeminence, owing to the excellent works which were written in it on almost every branch of literature. Most of the great works of antiquity which have been transmitted to our times are written in the Attic dialect. Some writers have made two, and some three divisions of the Attic dialect, with reference to extant writers; but the general division of the Attic dialect into *old* and *new* seems to be sufficiently exact. To the former division belong Æschylus, Sophocles, Euripides, Aristophanes, Antiphon, Thucydides, &c.; to the latter, Demosthenes, Æschines, and the contemporary orators. The language of Xenophon, Plato, and indeed Aristophanes also, may be considered as possessing a character somewhat intermediate between the two classes, and the name of *middle* may consequently be given to it; but it would be difficult to say exactly how a writer of this middle class is to be distinguished from the writers of the *new* Attic.

After the time of Alexander, when the Greeks were more united as a nation, the superiority of Athenian literature made the language of Athens the common language of these who wrote pure Greek. Aristotle may be considered as the earliest extant writer, not an Athenian by birth, who

adopted the language of Athens. The Attic dialect, then somewhat modified under Macedonian influence and by local circumstances, became the common written language of the educated Greeks. We find accordingly, under the successors of Alexander, and afterwards under the Romans, a series of Greek prose writers belonging to various countries, but all attempting to write one common language. These writers no doubt have each some peculiarities; but these peculiarities are not of that kind which distinguish the Ionic Greek of Herodotus, or the Doric Idylls of Theocritus from the language of Thucydides and Euripides. This common language of the learned Greeks was called the common dialect (ἡ κοινή, or ἡ Ἑλληνική διάλεκτος): Polybius, a native of the Peloponnesus, Strabo of Asia Minor, Diodorus of Sicily, and others, belong to the writers who use the Common Dialect. Some late writers affected rather to imitate the pure old Attic standard than to use the modified Attic, or Common Dialect, as Lucian, Arrian in his Anabasis, Aristides, &c. The name of Atticists (Ἀττικισταί) was given to this artificial class of writers, but especially to such imitators as Aristides. [See ARISTIDES, ÆLIUS.] The real characteristics of the Attic dialect can only be known by a careful study of the writers. The reader may consult Maittaire's *Græcæ Linguæ Dialecti*, by Sturz, 1807; Buttmann's *Greek Grammar;* and Matthiæ's *Greek Grammar.*

ATTICUS, T. POMPO'NIUS, was descended from a very antient family which formed one of the chief ornaments of the equestrian order. He was born the 9th of March, B.C. 109, being three years older than Cicero and Pompey, and nine older than Cæsar. He is sometimes called Q. Cæcilius (Cic. *ad Att.* iii. 20), a name which he derived, B.C. 58, from his maternal uncle Cæcilius, who left him a considerable estate.

His early years were spent under the direction of his father, whose taste for literature induced him to give his son the best education which Rome could supply; and that he was successful in inspiring him with his own love of learning is proved by the subsequent career of Atticus. He lived during the most stormy period of Roman history, and yet he contrived to retain the friendship of the various parties which in succession directed public affairs. Though he took no active part in politics, he was ever ready to help the unfortunate, to whatever party they might belong. He sent money to the son of Marius after he had been declared a public enemy: and yet he was on such friendly terms with Sulla, that this general was anxious to take him with him to Italy on his return from the Mithridatic war: but Atticus excused himself without losing the favour of Sulla. He was also on good terms with Cæsar, Pompey, M. Brutus, Antony, and Augustus; but his most intimate friend was Cicero, with whom he seems to have kept up a constant correspondence. Pomponia, the sister of Atticus, was married to Cicero's brother Quintus: but the match was not a happy one, as there is plenty of evidence to show that Quintus and his wife did not agree. We still possess the letters of Cicero to Atticus, in sixteen books, one of the most valuable records of that important period. Atticus spent a considerable portion of his life at Athens (from 85 to 65 B.C.), having proceeded to that city about B.C. 85, that he might not be witness of the misery caused by the factions of Cinna and Sulla; and it is not unlikely, though we have no information on the subject, that he derived the name of Atticus from his residence in this city. He so ingratiated himself with the Athenians, that the day of his departure was one of mourning to its inhabitants. Atticus had also an estate in Epirus, near Buthrotum, where he appears to have spent a considerable part of his time. He returned to Rome B.C. 65, when the political horizon seemed somewhat more bright, the same year in which Horace was born. We have no materials for a detailed account of his life, which was spent in the delights of literary retirement. He married at a late period (Feb. 12, B.C. 56) Pilia, of whom we know nothing more than the name (Cic. *ad Att.* iv. 4), and that her health appears not to have been very good. His daughter, Pomponia (called by Cicero also Cæcilia and Attica), married M. Vipsanius Agrippa, the intimate friend and able minister of Augustus; and his grand-daughter by this marriage, Vipsania Agrippina, was married to Tib. Claudius Nero, afterwards emperor, by whom she had Drusus. After Vipsania was divorced from Tiberius, she married Asinius Gallus, by whom she became the mother of a numerous family.

Atticus, whose health seems to have been particularly good, if we except some attacks from ague, died at the age of seventy-seven, March 31, B.C. 32, of voluntary starvation, after he found that a disease, with which he was seized, was incurable. He was the author of several works, none of which have been preserved. He wrote annals, in which he observed a strict chronological arrangement, and traced with much diligence the genealogy of illustrious families. They included a period of seven centuries; and though they referred principally to the history of Rome, he gave in them an abridged account of several of the more celebrated nations of antiquity. He was particularly happy in the composition of short epigrammatic inscriptions to be placed under the busts of illustrious men. He wrote also a history of the consulate of Cicero in the Greek language, in a plain, unadorned style. (Cic. *ad Att.* ii. 1.) In his philosophical opinions, Atticus belonged to the epicurean sect, as we see from various passages in Cicero's Letters; and conformably to the views of this sect, he avoided the troubles and the cares of public life. But though Atticus avoided the anxieties of a political career, he was an active man in looking after his own affairs. His equestrian rank enabled him to hold a share in one or more of those lucrative societies which farmed the public revenues; and accordingly we find him prosecuting a claim, arising out of such a connexion, against the corporation of Sicyon, in B.C. 61; and, at a later period, duties of a similar nature required his presence in Asia. Atticus had a great number of slaves, who were well educated, and appear to have served him as amanuenses and transcribers of books. Accordingly, Cicero (*ad Att.* i. 1) begs Atticus to see that a copy of his History of his Consulship is placed in Athens, and in every town in Greece: and he also shows, on several occasions, great eagerness to purchase a library which Atticus possessed, and apparently had formed himself. The *Life of Atticus*, by his contemporary and friend Cornelius Nepos, must be considered rather as the production of a panegyrist than of an impartial writer; and some have lately attempted to prove that it is not the work of this author. (Held, *Prolegom. ad Vitam Attici quæ vulgo Corn. Nepoti adscribitur*, Vratislav. 1826; see also *T. Pomp. Atticus, eine Apologie*, Eisenach, 1784; Hisely, *De Fontibus Corn. Nepotis.*)

ATTICUS, HERO'DES. [See HERO'DES.]

A'TTILA. This formidable conqueror was the nephew of Roas, a king or leader of the Huns, who at the beginning of the 5th century was established with his hordes in Pannonia, on the south bank of the Danube. Attila and his brother Bleda succeeded Roas A.D. 433. The first act of their reign was to conclude a peace with the Emperor Theodosius II. on terms disgraceful to the majesty of the Roman empire. Being thus at liberty to pursue his conquests in the north, Attila extended his dominions from the Danube eastward to the Volga, and northward even to the Baltic. A doubtful provocation, or an unscrupulous ambition, urged him, in violation of existing treaties, to cross the Danube; and he led an irresistible force through Mœsia into Thrace and Macedonia, signalising his way by three successive defeats of the forces of the Eastern Empire. The whole coast of the Archipelago, from Thermopylæ to Constantinople, was exposed to his ravages; and Theodosius in alarm retired into Asia. To obtain peace, he consented (A.D. 446) to terms still more humiliating than those of the former treaty; among which we find the cession of the tract along the banks of the Danube extending to the breadth of fifteen days' journey, and the payment of an increased tribute. Soon after, Attila, impatient of a partner in the throne, procured the assassination of his brother Bleda.

In 448 the historian Priscus accompanied ambassadors sent to apologize to Attila for the non-fulfilment of some articles of this treaty; and we derive from him some account of the domestic manners of the Huns. In the plains of Upper Hungary, somewhere between the Danube, the Theiss, and the Carpathian mountains, they came to a large village, which had grown up about the palace of Attila. The royal edifice was entirely of wood: the houses of the Huns were of the same or some meaner material, and the only stone building was a set of baths erected by the king's favourite Onegesius. But the wood was fashioned into columns, carved and polished; and the ambassadors could discover some evidence of taste in the workmanship, as well as barbarous magnificence in the display of the rich spoils of more civilized na-

tions. They were soon invited to a sumptuous entertainment, at which the guests were all served in silver and gold: but a dish of plain meat on a wooden trencher was set before the king, of which he partook very sparingly. His beverage was equally simple and frugal. The rest of the company were excited into loud and frequent laughter by the fantastic extravagances of two buffoons; but Attila preserved his usual inflexible gravity. A secret agent in this embassy was charged with the disgraceful task of procuring the assassination of this formidable enemy. Attila was acquainted with the real object of the mission; but he dismissed the culprit, as well as his innocent companions, uninjured. The emperor Theodosius was compelled, however, to atone for his base attempt by a second embassy, loaded with magnificent presents, which the king of the Huns was prevailed on to accept, and he even made some concessions in return. Theodosius died not long after (July 450) and was succeeded by the more virtuous and able Marcian.

Attila at this time was collecting an enormous army, and threatened both divisions of the Roman world. To each emperor he sent the haughty message, 'Attila, my lord and thy lord, commands thee to prepare a palace for his immediate reception.' To this insult was added a demand upon Marcian for the arrears of tribute due from the late emperor Theodosius. Marcian's reply was in the same laconic style. 'I have gold for my friends, and steel for my enemies.' It may have been the difference of character between the two emperors, which determined Attila to make war on Valentinian first. The pretext for hostility was this. Valentinian's sister Honoria, who was confined in Constantinople in consequence of some youthful errors, had maintained a secret correspondence with Attila, and sent him a ring in token of her affection. He received her advances very coolly, until at this time it suited him to demand her hand, with half the western empire as her dowry. The demand was refused, and Attila professed to be satisfied by the reasons assigned: but he did not the less turn his arms against Gaul. A pretence for entering it was all he wanted: and he closed with a proposal from the son of Genseric, king of the Vandals, to attack Theodoric, king of the Goths. He began by craft what was to be carried on by violence and terror. Valentinian was assured that his warlike preparations were levelled against Theodoric only: that he should ever look on the Romans as his friends, unless they espoused the cause of his enemy. At the same time he exhorted Theodoric to join him against the Romans, as their common foe. Meanwhile, in midwinter he marched through Germany without halting till he reached the Rhine early in the spring. There he defeated the Franks, cut down whole forests to build boats, and passing the river entered Gaul, several cities of which opened their gates to him, on his professions of friendship to the Romans. He soon threw off the mask. The calamities attendant on this invasion have been described in frightful colours by Sidonius, a contemporary, afterwards bishop of Clermont, and by the historians of France, who have collected all the antient testimonies. But his progress was at length arrested by the combined armies of the Romans and Goths, under the command of Ætius and Theodoric. They compelled him to make a hasty retreat from the siege of Orleans, and came up with him in the extensive plains surrounding Châlons-sur-Marne, a country well adapted to the cavalry of the Huns. There one of the most bloody battles recorded in history was fought, in which Theodoric was slain. The issue might have been considered doubtful; but the advantages of victory were gained, for Attila found it expedient to retreat. He moved slowly to the Rhine without molestation, and retired into Pannonia (A.D. 451).

After having reinforced his army, he returned to repeat his demand of the princess Honoria in the plains of Italy. He mastered the unguarded passes of the Alps, either in the latter end of 451, or in the beginning of 452, and advanced at once to Aquileia, the metropolis of the province called Venetia, which he invested, and utterly destroyed after a siege of three months. Not a house was left standing, nor one person left alive who fell into the hands of the captors. Verona, Mantua, Cremona, Brescia, and Bergamo, underwent the same fate. It is commonly believed that the city of Venice owed its origin to the inhabitants of the mainland, who fled at this time to the islands in the Delta of the Po. Cassiodorus, speaking of the Venetians, as he calls them about fifty years after, says, that they had no other fence against the waves than hurdles; no food but fish; no wealth beside their boats, and no merchandise but salt, which they exchanged for other provisions. Attila treated Milan and Pavia with unusual clemency; he neither fired the buildings, nor massacred the inhabitants. From Milan, Attila purposed to advance upon Rome: but as he lay encamped on the banks of Lake Benacus, he was approached by a supplicatory embassy, led by Avienus and Pope Leo I. [see AVIENUS]. He received them with kindness and respect, and consented to a truce with Rome, the duration of which was to depend either on the fulfilment of his claims on the princess Honoria, or the payment of a proportionate ransom. Prudence and superstition combined in this instance to check the implacable temper of the Hun. His troops, inured to the rigours of a northern climate, and the rude simplicity of a pastoral life, began to melt away in the luxurious plains of Italy; and the great Ætius, unable to oppose his progress, still hung on his march with a constant hostility. His friends reminded him of the fall of Alaric, after having plundered the Eternal City, and the example was not without effect upon his own mind. Nor were the dignity and eloquence of Leo void of influence; and the memory of that influence probably was preserved and amplified in the fable which represents St. Peter and St. Paul appearing to the barbarian, and threatening him with instant death if he rejected the request of their successor. Jornandes states, that, on the signature of this treaty, Attila retired beyond the Danube.

The death of Attila took place in 453. The common opinion is, that he died by the bursting of a blood-vessel on the night of his marriage with a beautiful maiden, whom he added to his many other wives; some, with a natural suspicion, impute it to the hand of his bride. Jornandes, transcribing, probably, from Priscus, relates the current story, and the solemn ceremony of his funeral.

Priscus observes, that no one ever subdued so many countries in so short a time. The vanity of the Romans refused to honour Attila with the title of king; they only styled him general of their armies, disguising an annual tribute under the specious name of military pay. His portrait, given by Jornandes, presents the genuine features of the Calmuck race: he was low in stature, broad-chested, and of powerful frame—dark-complexioned, with a few straggling hairs in the place of beard with a large head, flat nose, and small eyes. His carriage was fierce and haughty; and no one could behold him without concluding that he was sent into the world to disturb it. It was a saying of his own, that the grass never grew on a spot where his horse had trod. A tale is told by the Hungarian writers, that when he was in Gaul, a hermit told him that he was the *scourge of God*, who had put the sword of justice into his hand, to punish the vices of the Christians; but that it would be wrested from him when they were reclaimed. They add, that Attila remembered this saying after the defeat of Châlons, and added to his titles that of *Flagellum Dei*. His empire was overthrown and disjointed immediately upon his death, by the disputes and dissensions of his sons and chieftains; the fate of most unwieldy empires hastily erected by violence. (Jornandes, *De Rebus Geticis*, and Priscus, *Excerpta de Legationibus*, furnish the best antient materials for the history of Attila. For modern compilations, see Buat, *Histoire des Peuples de l'Europe*, and De Guignes, *Hist. des Huns*, besides the work of Gibbon, which has been our chief authority, and the *Anc. Un. Hist.*)

ATTLEBURGH, a town in Norfolk, in the hundred of Shropham, on the high-road from London to Norwich, through Thetford; 14 miles from Thetford, 14½ from Norwich, and 94 from London.

It is now a small and unimportant place, but appears to have been of some consequence in former ages, though its origin and early history are involved in considerable obscurity. The church tower is old, being part of the church originally built here; but the remainder of the edifice is of later date, and in the decorated English style, with some fine windows and excellent details. It is a cross church, and was collegiate. The foundation of the college was designed by Sir Robert de Mortimer, in the time of Richard II., and carried into effect by his executors or trustees in the time of Henry IV. It consisted of a master, warden, and four secular priests.

Attleburgh has three fairs in the year; and a market every Thursday. There are places of worship for Methodists and Baptists. The population in 1831 was 1939.

ATTOCK, a city and fortress on the east bank of the Sinde or Indus, within the territory of Runjeet Sing, Rajah of Lahore, in 33° 56′ N. lat., and 72° 30′ E. long. The fortress was built by Akbar in 1581, and takes its name from that branch of the Indus which flows from Caubul and joins the main stream about eight or ten miles above Attock. Ferishta calls this branch of the Indus 'Nilab,' or Blue River; it is now more commonly known as the Caubul river. According to Major Rennell, the name of Attock, which in the original language of the country means *forbidden*, was given to it from the circumstance of its forming the original boundary of Hindostan in that quarter, which boundary it was unlawful for a Hindu to pass over without special permission. According to Dr. Robertson (*Historical Disquisition concerning Antient India*, p. 93), this place is mentioned by Ptolemy, as well as by 'an eastern geographer quoted by M. D'Anville,' under the name of Nagara, on the river Cophenes. They give its latitude 32° 30′, which position agrees more nearly with modern observation than has usually been seen in similar cases.

It is generally admitted that Alexander must have crossed the Indus on his invasion of India, in the spring of 326 B.C., at or near Attock; but it is quite as likely that he crossed above or below, as just at the place. It is also believed that Timur, when he invaded India in 1398, crossed the Indus at the same place; which was also the route of Nadir Shah in 1738.

The Indus, as it flows in front of Attock, is nearly 800 feet (260 yards, according to Elphinstone) broad, and of considerable depth; but it runs with so rapid a current that no accurate soundings can be taken. The banks, which are of a black stone, have acquired smoothness from the force of the stream and the constant friction of the particles of sand which it carries down, so that they shine like polished marble. Notwithstanding the rapidity of the stream, it is easily crossed in boats and on the inflated hides of oxen. The Rajah of Lahore now keeps a bridge of thirty-seven boats at Attock, for the purpose of transporting his army across the river.

The fortress was formerly the residence of the Afghan government, and was then a place of considerable importance: but since 1818, when it came into the possession of the Rajah of Lahore, it has been fast falling to decay. It is built in the form of a parallelogram, and stands on a low hill on the east bank of the river, to which it offers a front of 1200 feet: the walls, which recede from the river, are of double that length; they are built of polished stone, and make a handsome appearance. The place has the disadvantage, in a military point of view, of being commanded by a hill at the back; there is also a fort, which was built by Nadir Shah, on the opposite bank of the river. (See Rennell's *Memoir*; Elphinstone's *Caubul*, p. 623; *Report of Committee of House of Commons on Indian Affairs*, Session 1832; Burnes's *Memoir on the Indus*. *London Geog. Journal*, 1833.)

ATTORNEY is a person substituted (*atourne, attornatus*), from *atourner, attornare*, to substitute, and signifies one put in the place or *turn* of another to manage his concerns. He is either a private attorney authorized to make contracts, and do other acts for his principal by an instrument called a letter of attorney; or he is an attorney at law, practising in the several courts of common law. The latter description only will be treated of under this head. As to the former, see LETTER OF ATTORNEY.

An attorney at law answers to the *procurator*, or proctor, of the civil and canon law, and of our ecclesiastical courts. Before the statute 13 Edward I., c. 10, suitors could not appear in court by attorney without the king's special warrant, but were compelled to appear in person, as is still the practice in criminal cases. The authority given by that statute to prosecute or defend by attorney formed the attorneys into a regular body, and so greatly increased their number, that several statutes and rules of court for their regulation and for limiting their number were passed in the reigns of Henry IV., Henry VI., and Elizabeth: one of which, the 33 Henry VI. c. 7, states, that not long before there were only six or eight attorneys in Norfolk and Suffolk, '*quo tempore magna tranquillitas regnabat*;' but that their increase to twenty-four was to the vexation and prejudice of the counties; and it therefore enacts, that for the future there shall be only six in Norfolk, six in Suffolk, and two in Norwich—a provision which has been since signally evaded, though not repealed. It will be convenient to consider—

1st. The admission of attorneys to practise, their enrolment, and certificates:—

2d. Their duties, functions, privileges, and disabilities.

3d. The consequences of their misbehaviour.

4th. Their remedy for recovering their fees, &c.

1st. *The admission of attorneys to practise, their enrolment, and certificates.*—The earlier regulations as to the admission of an attorney (see 3 Jac. I. c. 7, s. 2, and rules of courts in 8 Car. I., and 1651) required that he should serve for five years as clerk to some judge, serjeant, counsel, attorney, or officer of court; that he should be found, on examination by appointed practisers, of good ability and honesty; and that he should be admitted of, and reside in, some inn of court or chancery, and keep commons there. These were superseded by the 2 Geo. II. c. 23, s. 5, now in force; which provides that no person shall practise as an attorney in the superior courts unless he has been bound by contract in writing to serve for five years as clerk to a regular attorney, and has continued five years in such service, and has been afterwards examined, sworn, admitted, and enrolled in manner in the act mentioned, under penalty of 50*l.* and an incapacity to sue for his fees. This provision is by subsequent statutes extended to practising in the county court or the quarter sessions; and by 34 Geo. III. c. 14, s. 4, any person practising as an attorney without due admission and enrolment shall forfeit 100*l.*, and be disabled from suing for his fees. By the 1 & 2 Geo. IV. c. 48, and 3 Geo. IV. c. 16, persons having taken the degree of bachelor of arts, or bachelor of law, in the university of Oxford, Cambridge, or Dublin, and having served under contract in writing for *three* years with an attorney, and having been actually employed during the three years by such attorney or his agent in the business of an attorney, shall be qualified to be admitted as fully as if they had served five years; provided the degree of bachelor of arts was taken within six years after matriculation, and the degree of bachelor of law was taken within eight years after matriculation: the binding to the attorney must also be within four years after the taking of the degree. By the 22 Geo. II. c. 46, an affidavit must be made within three months from the date of the articles of the execution thereof by the attorney and by the clerk, which affidavit must be filed in the court where the attorney is enrolled, and be read in open court before the clerk is admitted and enrolled an attorney. Acts of indemnity are however occasionally passed, relieving persons who have neglected to file their affidavits within the limited time. By the last general stamp act, a duty of 120*l.* is imposed upon the articles of clerkship of attorney, and 1*l.* 15*s.* on the counterpart: and by 34 Geo. III. c. 14, s. 2, the articles, duly stamped, must be enrolled or registered with the proper officer in that court where the party proposes to practise as an attorney. No attorney is allowed to have more than two articled clerks at once, and these only during such time as he is actually in practice on his own account, and not at any time during which he himself is employed as clerk by another attorney. The clerk, in order to be admitted an attorney, must actually *serve* five years under his articles; but by 22 Geo. III. c. 46, in case the attorney dies, or discontinues to practise, or the articles are by mutual consent cancelled, then the clerk may serve the residue of the time under articles to any other practising attorney, and the new articles are not subject to stamp, 34 Geo. III. c. 14, s. 5, except the duty of 1*l.* 15*s.* The articled clerk may serve one year, but not a longer time, with the agent of the attorney to whom he is articled: a plan generally adopted by country clerks, who thus acquire a year's experience of the practice in London, without delaying their admission: and by the 1 & 2 Geo. IV. c. 48, s. 2, an articled clerk who becomes *bonâ fide* a pupil to a barrister, or certificated special pleader, *for one whole year*, may be admitted in the same manner as is done if he serves one year with the agent of the attorney to whom he is bound. Before the clerk can be admitted an attorney, he must cause an affidavit of the actual service under the articles, sworn by himself or the attorney with whom he has served, to be filed in the court to which he seeks admission; he must also make oath (or affirmation, if a Quaker) that he has duly paid the stamp duty on the articles, and that he will truly and honestly demean himself as an attorney; and must take the oaths of allegiance and supremacy, and subscribe the declaration against popery, or, if a Roman Catholic, the declaration and oath prescribed by the statute 31 Geo. III. c. 32, s. 1. The attorney pays a stamp duty

on his admission of 25*l*. His name is then enrolled without fee by the officer of court, in books appointed for the purpose to which books all persons have free access, without payment of any fee. When the attorney is admitted, he subscribes a roll, which is the original roll of attorneys, of which the court takes notice as the recorded list of its officers, and from which the names are copied into the books An attorney duly sworn, admitted, and enrolled in any of the superior courts of *law*, may be sworn and admitted in the courts of *equity* without fee or stamp duty; and so a solicitor in any court of equity at Westminster may be sworn, admitted, and enrolled an attorney of his Majesty's courts of law, and an attorney in a superior court at Westminster is capable of being admitted in any inferior court of record. An attorney admitted in one court of record at Westminster, may, by the consent in writing of any other attorney of another court, practise in the name of such other attorney in such other court, though not himself admitted in such court. But if any sworn attorney knowingly permit any other person, not being a sworn attorney of another court, to practise in his name, he is disabled from acting as an attorney, and his admittance becomes void.

In addition to swearing, admission, and enrolment, an attorney, in order to be duly qualified for practice, must take out a certificate at the Stamp office every year between the 15th November and 16th December for the year following, the duty on which is 12*l* if he reside in London or Westminster, or within the delivery of the twopenny post, or within the city of Edinburgh, and has been in practice three years, or 6*l* if he has been admitted a less time and if he reside elsewhere, and has been admitted three years, 8*l*, or if he has not been admitted so long, 4*l*; and if he practise without certificate, or without payment of the proper duty, he is liable to a penalty of 50*l* and an incapacity to sue for his fees (55 Geo III. c 184, s 27) But by the 44 Geo III. c 98 s. 10, these penalties can only be sued for by the Attorney General, like other stamp penalties, and acts of indemnity are occasionally passed to relieve attorneys who have neglected to take out their certificates in due time. The omission by an attorney to take out his certificate for one whole year incapacitates him from practising, and renders his admission void but the courts have power to re-admit him on payment of the arrears of certificate duty, and such penalty as the courts think fit (37 Geo III c 90)

2 *The duties, functions privileges and disabilities of attorneys*—The principal *duties* of an attorney are care, skill, and integrity, and if he be not deficient in these essential requisites, he is not responsible for mere error or mistake in the exercise of his profession But if he be deficient in proper skill or care and a loss thereby arises to his client, he is liable to a special action on the case as, if the attorney neglect on the trial to procure the attendance of a material witness, or if he neglect attending an arbitrator to whom his client s cause is referred, or if he omit to charge a defendant in custody at the suit of his client, in execution within the proper time When an attorney has once undertaken a cause, he cannot withdraw from it at his pleasure, since this would injure his client, and though he is not bound to proceed if his client neglect to supply him with money to meet the necessary disbursements, yet before an attorney can abandon the cause on the ground of want of funds, he must give a sufficient and reasonable notice to the client of his intention. When deeds or writings come to an attorney's hands in the way of his business as an attorney, the court, on motion, will make a rule upon him to deliver them back to the party on payment of what is due to him on account of professional services and disbursements, and particularly when he has given an undertaking to re deliver them: but, unless they come to his hands strictly in his business as an attorney, the court will not make a rule, but leave the party to bring his action against the attorney

An attorney duly enrolled and certificated is considered to be always personally present in court, and on that account has still some *privileges*, though they are now much narrowed. Till lately he was entitled to sue by a peculiar process, called an attachment of privilege, and to be sued in his own court by bill; but the late act for uniformity of process, 2 Will. IV. c. 39, has abolished these distinctions, and an attorney now sues and is sued like other persons. By reason of the supposed necessity for his presence in court, an attorney is exempt from offices requiring personal service, as those of *sheriff, constable, overseer of the poor*, and also from serving as a juror. These privileges being allowed not so much for the benefit of attorneys as of their clients, are confined to attorneys who practise, or at least have practised within a year.

An attorney is also subject to some disabilities and restrictions. No attorney practising in the King s Courts can be under-sheriff, sheriff's clerk, receiver, or sheriff's bailiff. (1 Hen. V. c. 4.) No clerk of the peace, or his deputy, can act as attorney or agent at the Quarter Sessions, under a penalty of 50*l*. (22 Geo. II. c. 46) By rule of Michaelmas Term, 1644, no attorney can be lessee in ejectment, or bail for a defendant in any action. By 5 Geo. II. c. 18. s 2, no attorney can be a justice of the peace while in practice as an attorney; and no practising attorney can be a Commissioner of the Land Tax without possessing 100*l* per annum. By 12 Geo. II c 13, no attorney who is a prisoner in any prison, or within the rules or liberties thereof, can sue out any process, or commence or prosecute any suit, under penalty of being struck off the roll, and incapacitated from acting as an attorney for the future, and the punishment is the same for any attorney who suffers an attorney in prison to prosecute a suit in his name. but an attorney in prison may carry on suits commenced before his confinement, and the statute does not prohibit his defending, but only his prosecuting suits.

3 *The consequences of an attorney's misbehaviour*—The court which has admitted an attorney to practise treats him as one of its officers, and exercises a summary jurisdiction over him, either for the benefit of his clients, or for his own punishment in case of misconduct If he is charged on affidavit with fraud or malpractice, contrary to justice and common honesty, the court will call upon him to answer the matters of the affidavit, and if he do not distinctly deny the charges imputed to him, or if he swear to an incredible story in disproof of them, the court will grant an attachment If the misconduct of the attorney amount to an indictable offence, the courts will in general leave him to be indicted by the party complaining, and will not call upon him to answer the matters of an affidavit. If the attorney has been fraudulently admitted, or has been convicted of felony or any other offence which renders him unfit to practise, or if he has knowingly suffered his name to be used by a person unqualified to practise, or if he has himself acted as agent for such a person, or if he has signed a fictitious name to a demurrer purporting to be the signature of a barrister, or otherwise grossly misbehaved himself, the court will order him to be struck off the roll of attorneys But striking off the roll is not a perpetual disability for in some instances the court will permit him to be restored, considering the punishment in the light of a suspension only.

4. *The attorney s remedy for recovering his fees.*—An attorney may recover his fees from his client in an action of debt or *indebitatus assumpsit*, which he may maintain for business done in other courts as well as in that of which he is admitted an attorney But an attorney cannot recover for conducting a suit in which, owing to gross negligence or other cause the client has had no benefit whatever from the attorney s superintendence. By the 2 Geo. II. c. 23 s 23, no attorney shall sue for the recovery of his fees or disbursements till the expiration of one lunar month after he has delivered to his client a bill of such fees or disbursements, written in a legible hand, and subscribed with his own hand, and on application of the party chargeable by such bill, the court, or a judge or baron of the court in which the business is done, may refer the bill to be taxed by the proper officer; and if the attorney, or the party chargeable, shall refuse to attend such taxation, the officer may tax the bill *ex parte*, pending which reference and taxation no action shall be commenced for the demand, and on the taxation and settlement of the bill, the party shall pay to the attorney, or as the court shall direct, the whole sum due on the bill, or be liable to attachment or process of contempt; and if it is found that the attorney has been overpaid, then he shall forthwith refund. The statute only applies to fees and disbursements for business done in a court of law or equity. If the whole bill be for conveyancing, it cannot be taxed; but if any part of the bill be for business done in court, the bill must be delivered a month before the action is brought, or the attorney cannot recover, in which case *all* the items are taxed. Many nice distinctions have been drawn as to what transactions of an attorney constitute

business done in a court so as to render his bill subject to taxation. For these we must refer to Tidd's Practice, tit. *Attorneys*.

To assist an attorney in recovering his costs, he has a *lien* for the amount of his bill upon the deeds and papers of his client which have come to his hands in the course of his professional employment; and till his bill be paid, the court will not order them to be delivered up, nor can an action be maintained for them. The attorney has also the same *lien* on any money recovered by his client which comes to his hands in the character of his attorney. As a further security to the attorney, his client is not permitted to discharge him and substitute another without obtaining the leave of the court or a judge's order for that purpose, which is never granted except upon the terms of paying the first attorney's bill. See Rule 2 Will. IV., reg. 1, s. 93. (See Bac. *Abridgment*, tit. *Attorney*, 7th edition; Tidd's *Practice*, 9th edition, chap. iii. and xiv.)

ATTORNEY-GENERAL. The attorney-general is a ministerial officer of the crown, specially appointed by letters-patent. He is, in principle, nothing more than the attorney for the king, and stands in precisely the same relation to him that every other attorney does to his employer. The addition of the term 'general' to the name of the office probably took place in order to distinguish him from attorneys appointed to act for the crown in particular courts, such as the attorney for the Court of Wards, or the master of the Crown Office, whose official name is 'coroner and attorney for the king' in the Court of King's Bench. By degrees the office, which has usually been filled by persons of the highest eminence in the profession of the law, has become one of great dignity and importance. The duties of the attorney-general are to exhibit informations and conduct prosecutions for such heinous misdemeanours as tend to disturb or endanger the state; to advise the heads of the various departments of government on legal questions; to conduct all suits and prosecutions relating to the collection of the public revenue of the crown; to file informations in the Exchequer, in order to obtain satisfaction for any personal wrong committed in the lands or other possessions of the crown; to institute and conduct suits for the protection of charitable endowments, in which the king, as *parens patriæ*, is entitled to interfere; and generally to appear in all legal proceedings, and in all courts, where the interests of the crown are in question.

The precise rank and precedence of the attorney-general have frequently been the subject of discussion and dispute. Indeed the early history and origin of this office, upon which the question of precedence in a great measure depends, is matter of great obscurity. There is no doubt that at all times the king must have had an attorney to represent the interests of the crown in the several courts of justice; but in early times he was probably not an officer of such high rank and importance as the attorney-general of the present day. There are no traces of such an officer till some centuries after the conquest; and it is clear that, until a comparatively late period, the king's serjeant was the chief executive officer for pleas of the crown. (Spelman, *Gloss.* tit. *Serviens ad legem.*) In the old form of proclamation upon the arraignment of a criminal, the king's serjeant was, till very lately, always named before the attorney-general; and previously to the Commonwealth he invariably spoke before him in all criminal prosecutions, and performed the duty of 'opening the pleadings,' which since the Commonwealth has always been done by the junior counsel. In the reign of James I. a curious altercation between Sir Francis Bacon, who was then attorney-general, and a serjeant-at-law, upon this subject, is related in Bulstrode's *Reports*, vol. iii. p. 32, upon which occasion Lord Coke, who was then chief justice, said that 'no serjeant ought to move before the king's attorney, when he moves for the king; but for other motions any serjeant-at-law is to move before him.' He added, that when 'he was the king's attorney, he never offered to move before a serjeant, unless it was for the king.'

All questions respecting the precedency of the attorney-general and the serjeants were terminated by a special warrant of his late majesty, George IV., when Prince Regent, in 1811, by which it was arranged that the attorney-general and the solicitor-general should have place and audience at the head of the English bar.

A discussion arose during the session of parliament [illegible], at the hearing of a Scotch appeal in the House of Lords, upon the question of precedency between the attorney-general and the lord advocate of Scotland, which was finally decided in favour of the former.

ATTRACTION, from two Latin words signifying a *drawing towards*, a term the meaning of which has been obscured by the verbal disputes of a century and a half. Considering the great importance of correctly understanding a word which is in such universal use, we shall endeavour to point out the various ways in which it has been misunderstood. The applications of the word to the experimental facts which it implies, such as attraction of gravitation, attraction of cohesion, electrical attraction, capillary attraction, &c., must be looked for under the heads GRAVITATION, COHESION, ELECTRICITY, &c.

When a word has been the subject of dispute, especially when there have been ignorant and learned men on both sides, it generally happens that several different meanings have been affixed to it. In the present instance we are obliged to make use of more terms than one to represent the various senses in which *attraction* has been used. We shall therefore explain what we mean by *mathematical* attraction, *mathematico-physical* attraction, and *physical* attraction. The reader may supply any terms which he likes better, if he will take care to distinguish their meanings.

(1.) When we see the body A move towards B, we see the effect that would be produced, if B, directly or indirectly, had the power of *drawing* A *towards it*, or of *attracting* it. But if we only see the fact, and measure the law of the motion, and find thereby that A moves as it would move if B did attract it according to some simple law, we can then find what is to take place during the rest of the motion, if the same law continue. For, in the mathematical formulæ, deduced from principles which have always been admitted and appealed to by the opponents of attraction themselves, it clearly is of no importance, as to results, whether we substitute the real truth of nature, or that which is equivalent to it in its effects, or in the particular effect under consideration. Thus, if the earth move round the sun, in just the same manner as it would do *if* the sun attracted it according to the Newtonian law, then that law may be used as a means of deducing future phenomena. A person who admits so much, admits what we mean by *mathematical* attraction. We might instance various *mathematical* modes of speaking, which in strict physics are false. The sun *throws* a shadow. The sun throws nothing but light, and it is because an opaque body prevents his throwing direct light that there is a shadow. But the phenomenon is as if the sun did throw the positive appearance called shadow, and the phrase is admitted. The sun moves round the earth once a day—should be, the earth turns round its axis once a day; but we see the same appearances as would be presented if the sun did move round the earth. But the most direct use of the *mathematical* way of speaking is in the term CENTRIFUGAL FORCE (which see), where we speak as if a body really endeavoured to go direct away from a centre, when in truth it endeavours to keep its own straight line of motion unaltered. But the effect being exactly that of an endeavour to move directly away, the term is admitted, though certainly more liable to be misunderstood than *attraction*.

(2.) When A not only moves towards B, but it is plain that B is in some way or other an agent in the motion of A, there is what we will call *mathematico physical* attraction. Place a needle so as to swim on water, and hold a magnet north of it; the needle will slowly move towards the north. But place the magnet east, and the northward motion will be almost immediately destroyed by the resistance of the water, and the needle will then move east; and so on for any other point of the compass. Here then, in addition to the conclusions we might draw from the preceding paragraph, we see that the magnet is in some way or other an actor. In the preceding case, B might be taken away, and for any thing we are supposed to know to the contrary, A might continue its motion just as before; but in the present case, the needle always moves towards where the magnet is, and never moves towards where the magnet is not. The words cause and effect, then, have no meaning, if we may not say it is the magnet which attracts (draws) the needle. But whether it draws it directly, or whether it acts upon some all-pervading fluid (this word is really almost synonymous with *unknown cause*), as some have supposed, which fluid acts upon the needle, or whether any other intermediate cause exists, is not necessary to be considered here. We do not mean to imply anything

for or against such suppositions when we say that there does exist a *mathematico-physical* attraction.

Further to illustrate our meaning:—when a wooden swan swims towards a bit of bread, there is mathematical attraction between the swan and the bread, to puzzle children: there is a mathematico-physical attraction between the iron hidden in the bird, and the magnet hidden in the bread, to puzzle philosophers: the unknown nature of the cause has never caused the children to doubt the *fact;* but some philosophers, in former times at least, have gone as great lengths.

(3.) By *physical* attraction is implied a power residing in B, by which A is drawn to it without the intermediation of any other cause whatever, except the will of the Creator. If a space of the universe could be entirely cleared of matter, except only two portions (particles or atoms, if such things are), A and B, at rest; then if A would necessarily begin to move towards B by some power in B, which is as much a part of its actual existence as its figure or impenetrability, there exists what we mean by *physical* attraction. Whether there be such a power or not is not known; nor, we think, can it ever be known. For even supposing we had followed the chain of secondary causes till we had approached to the First Cause, we could not be certain we had done so without becoming acquainted with a nature and modes of action, for which our very terms have never been anything but expressions either of complete ignorance, or feeble analogies from our own perceptions.

Let the cause of attraction be discovered, and whatever it be, denote it by ( ); then shall we have the same succession of unmeaning disputes about ( ) that have employed misguided energies about the word attraction. Those who positively deny physical attraction are not aware what they are saying, unless they deny the possibility of matter having properties which are not directly perceptible to the senses: those who positively affirm the same are as illogical, unless they mean to deny the possibility of an intermediate agent. Both parties are meddling with matters on which no direct experiments can be made.

We now proceed to inquire what are the proofs that *mathematico-physical attraction* (which sort of attraction we mean throughout the rest of this article, unless the contrary be specially mentioned) does really and universally take place between the portions of matter composing our universe. This question divides itself into the proofs of matter attracting and being attracted by matter *upon our earth;* and the matter of our earth attracting and being attracted by the *matter of other planets.*

We will take this opportunity of trying to remove the effect of a mere sarcasm, which may prejudice the reader against the proofs which we produce. Asks the objector, Are we to believe that every particle of matter, how small soever, attracts every other? One says (we remember to have seen) *wonderful!* to the supposition that the snuff in his snuff-box attracts the snuff in the snuff-boxes of the inhabitants of Saturn. The author is one of the Hutchinsonians, as they are called, who maintain the *reality* of every phenomenon mentioned in common terms throughout the Bible, which they call drawing their natural philosophy from thence; though perhaps, by following St Paul's advice—to prove all things, and hold fast that which is good—they might equally have acted up to their principle. It is *wonderful!* then that terrestrial and Saturnian snuff should mutually attract. Be the cause of a phenomenon, real or presumed, what it may, it will certainly be wonderful. All the works of God are wonderful, says King David; but the preceding method of reasoning would convict us of impiety for quoting him. To pursue it in the author's style: Is a *snuff box* a wonderful work of God; and a Scotch snuff-box, with a picture of a man and a gun, and a little dog? Every association may be made ridiculous which compares small things with great; but surely it is not absurd to suppose that, in whatever way the earth may act as a whole, any part of it, however small, may perform its proportional part. Take the following parallel case: nothing can be more indisputable, that, when any body is in rotation, and a part is drawn towards the centre, the velocity of rotation is increased. This is seen in an opera dancer, who having spun at the rate of once or twice in a second with one leg at right angles to the other, suddenly increases his rotation to five or six times in a second, partly by drawing in the extended leg. But are we to believe that by raising our arms, we slacken the earth's rotation or lengthen the day; and by lying down on the ground, the contrary? We can only answer that if by drawing down the whole atmosphere, we should alter the day only one second, every part of the atmosphere would do its part of one second. A mind unused to mathematical considerations does not easily comprehend the very small or the very great. One objector is scandalised at the idea that a man's hand would move the earth. He clearly has no idea of any motion smaller than that which his eyes can see.

We shall now cite the experiment of Cavendish, described in the *Phil. Trans.* for 1798. If we balance one ball of lead by another on a horizontal lever, no horizontal oscillation takes place; but any little disturbance makes the lever turn completely round again and again, till friction restores the equilibrium. Cavendish balanced two balls of lead very nicely on a lever, which he suspended by a thread. A firm stand was provided, and the whole was inclosed in a wooden case, to prevent agitation by the air, inserting only a telescope and a lamp on one side. When the apparatus was firm and no motion was perceived in the interior pendulum, other leaden balls of considerable size were suddenly presented, outside the case, to each end of the lever, whereupon horizontal oscillations immediately began in the lever like those of a pendulum upon the earth—such oscillations as would take place if the balls attracted one another. He observed the duration of these oscillations; and thence, knowing the duration of the oscillation which the earth creates in a pendulum, and also knowing the relative densities of lead and water, he ascertained that, if the commonly received law of attraction be correct, the earth's average density must be $5\frac{1}{2}$ times as great as that of water. Hutton, on recalculating his result, found reason to think the $\frac{1}{2}$ should be $\frac{1}{10}$. We shall immediately notice this result again.

It is evident that if matter attract matter, a mountain contiguous to a plumb-line or a spirit-level will, in a slight degree, alter the position of the former, or the surface of the latter. We can hardly expect to measure the trifling displacement by direct means; but since the instruments alluded to are the *regulators* of some astronomical instruments, it is plain that a false plumb-line or level may show itself by giving false positions to the stars. And it is well known that the mean of a number of observations detects very small instrumental errors. Bouguer, in Peru, suspected that the proximity of Chimboraço affected his plumb-line; and even detected a number of seconds which he could in no other way explain: but his results remain unverified. In 1772, Maskelyne (one of the best observers of his time) proceeded to Scotland, to try the effect of Schehallien. He made a great number of observations both north and south of the mountain; for he argued that since the plumb-line, if disturbed, must tend towards the mountain in both cases, the discordance he sought would be doubled, and more easily perceptible. He found in this way, that the north plumb-line and the south plumb-line made an angle of $11\frac{1}{2}''$ more than could be explained by the difference of latitude of his two stations. Hutton, on calculating the mean density of the earth from this result, found it five times as great as water; a result very nearly that afterwards produced by Cavendish, when it is considered that both the mean density and form of such a mass as Schehallien could not be very accurately determined. Maskelyne chose forty observations, which he considered the best; but Baron Zach obtained the same result by reducing the whole 337.

In 1810 the same Baron Zach undertook a similar labour, in which he employed a different instrument, and a different method of verification. He was carrying on a trigonometrical survey in the neighbourhood of Marseilles, and he had three small observatories near Mount Munet, north of that town. He obtained the latitude of these observatories by measuring on the earth their position with respect to other stations too distant from the mountain to be sensibly affected. He then obtained the latitude of his observatories by astronomical observation on the spot. All three, without exception, gave a difference of $2''$ between the geodesical and astronomical latitudes, and in all the observed latitude was greater than the measured, being the sort of effect which would be produced by attraction in the mountain. M. Zach published the fullest detail of his method, and all the observations, in his *Attraction des Montagnes*, Avignon, 1814. For details of Maskelyne's measurements, see Hutton's *Tracts*, vol. ii., and *Phil. Trans.* 1778.

We now come to the question how the attraction of the par-

tides of one heavenly body on those of another is established. For details of this very extensive subject, see GRAVITATION, and articles there referred to. The *resumé* of the argument is this: the phenomena which *do* take place in the heavens are those which common and undisputed mechanical and mathematical reasoning show *would* take place if the Newtonian law be true. And every phenomenon of importance has been gradually brought under the consequences of this law by various analysts. To recount instances would be to make a summary of astronomical terms; but we will select one, which, in one sense, is the most dubious, namely, the phenomena of the tides. For, whereas the place of the moon or a planet is predicted within from half a second to a second of time, the time of high water cannot yet be predicted within some minutes, at least in a port. How much this phenomenon may be affected by winds or the nature of the coast, is not difficult to conceive; but the following result is a striking specimen of accordance between theory and fact. If the tides proceed from Newtonian gravitation, the mean *tide-day*, or interval between successive times of high water, must be equal to the time between the moon's coming on the meridian above and below the horizon, or, roughly speaking, two tide days make a lunar day. It is found by analysis, that, if the Newtonian theory be true, the average tide-day must be exactly equal to half the average lunar day, though particular instances of the two may differ many minutes. This is found to be the fact: for if the tide-day were more than half the lunar-day by as much as one tenth of a second on the average, that is, if the tides lagged, one with another, by $\frac{1}{10}''$ daily, two thousand years would have seen high water at every possible part of the lunar-day. But for two thousand years it has never been denied that high water takes place at every port within a certain time (usually less than four hours) of the moon's coming on the meridian. Again, a permanent retardation would, in course of time, bring high water when the moon was precisely on the meridian, for a long succession of days together: a result which never has been observed, and which, according to the Newtonian theory, is impossible.

An immense number of accordances between theory and observation, and there being no assignable discrepancy whatsoever, of any considerable amount, form the nature of the proof of the Newtonian law. And it must be observed that this has not been done in a day, or by one person, but in a century and a half, and by philosophers of several countries—not by men prejudiced in favour of Newton, but the contrary; for it was long before his doctrines found their way over to the continent, and the dispute about the invention of fluxions had laid the foundations of a strong anti-Newtonian prejudice. We may observe, also, that England, where the veneration of Newton amounted almost to idolatry, has done much less towards the development of his system than either France, Germany or Italy: so that the Newtonian system was really fully established by those who had every national and personal bias to endeavour to overturn it. This it is necessary to state, because it is frequently asserted that the prevailing system is sustained by the name and authority of Newton. This argument, it will be observed, can be easily brought in any case, for every system, true or false, will have an originator, who will certainly enjoy great reputation as soon as his ideas come to be universally received. But it is an argument which is of equal force both against a true and a false system, not having any tendency to furnish a test between one and the other, unless it be meant to be asserted that nothing is to be received as truth, upon any proof whatever, which comes from a man of known talents and knowledge.

We shall now give some account of the disputes upon the word attraction; but, first, we shall show how it was used by Newton. The writings of this great man may be divided into mathematical and physical: the propositions of the *Principia* are mathematical, interspersed occasionally with scholia, in which conjectures are made upon the cause of this mathematical, or at most mathematico physical, attraction. Newton was very far from supposing what we have called physical attraction, as the following extract from the *Principia* will show:—

'Thus far I have explained the phenomena of the heavens and the sea by the force of gravity; but I have *not yet* assigned the cause of gravity...... The reason of these properties I have *not yet* deduced from phenomena, and I do not invent hypotheses. For whatever is not deduced from phenomena is called *hypothesis*, and hypotheses, be they metaphysical, physical, of occult qualities, or mechanical, have no place in experimental philosophy. It is enough that gravity really exists, and acts according to laws laid down by us; and suffices to explain all the motions of the heavens and the sea.'

The repeated use of the words *not yet*, 'nondum,' would lead us to suppose that Newton thought that the cause of attraction might be discovered, and the sentence next following our preceding quotations shows that he leaned towards the notion of a highly subtle fluid, which was afterwards the *hypothesis* of those who constituted him their opponent. 'Something might be added about that most subtle spirit which pervades and lies hid in all dense bodies, by force and action of which the particles of bodies mutually attract at the smallest distances, &c.... But this cannot be explained in few words, neither is there a sufficient number of experiments by which the laws of action of this spirit can be accurately determined and shown.' (*Principia, Schol. Gen.* at the end.)

Again in the Optics, Newton dwells upon the same distinction between a phenomenon and its cause, and says that attraction may be caused by an impulse or some other unknown cause. But once for all, both against Newton and his opponents, we must observe, that an invisible fluid leaves the difficulties of the question where it found them. If this fluid have the common properties of matter, what is there to explain the mutual repulsion of its particles? Must they have a fluid to cause that phenomenon, and so on *ad infinitum*, or must an unknown cause of repulsion take the place of an unknown cause of attraction? If this fluid have other properties unknown to matter as we see it, it is then a purely gratuitous supposition, as difficult as what we call *physical* attraction, which is only matter with one more quality than we can directly see or feel.

Leibnitz called attraction an *occult quality*, and a *miracle*. The first term was the horror of the continental philosophers about his time. Their predecessors had attributed various properties to matter which could not be proved by experiment, which were justly called *occult* (or hidden). In their desire to be rid of all such, succeeding philosophers would not only abolish the qualities of matter which they had invented, over which of course they had absolute power, but they tried also to abolish their own ignorance of the causes of the *sensible* qualities of matter. They would not have occult causes, and Leibnitz plainly confounds *occult* quality with *occult* cause. But it is needless to dwell upon the fact that the ultimate causes of all qualities are occult. When Newton adopted the word attraction, he did not take up and fix the meaning of a word which till his time had been ambiguous, still less, as some have asserted, did he retain a mystical meaning, which his followers afterwards cleared from absurdity. At and before the time of Newton, the word attraction was frequently used in our second, or *mathematico physical* sense: for example, in the English translation of J. B. Porta, A.D. 1658, where to 'attract' is used for to 'draw forth,' in opposition to 'compound' or 'lay together.' But the philosophic use of the word is more conspicuous in Sir K. Digby's *Treatise on Bodies*, A.D. 1669, where it is said that whenever the first cause of the motion proceeds from that body towards which the motion is made, the effect is 'properly called attraction,' which is illustrated by the case of fire and air, in which, though there is an intermediate cause assigned by himself—namely, that the fire rarefies the contiguous air, which therefore ascends, and the surrounding air rushes in to supply its place—the author says that the fire *attracts* the air.

The objections made to the Newtonian attraction have been, with one or two exceptions, the work of those who had obviously not read Newton, or any geometrical work on the subject. We must take them in classes, and describe them as far as our limits will allow us to do.

1. We have those contained in axioms, which are either unproved or unmeaning, such as '*matter* cannot *act* where *it is* not.' Those who bring this forward should explain the three hard words which they have put in italics, and we should then see whether this be self evident or not. They should also remember that the celebrated immaterialism of Berkeley is, in several ways, an attack upon the word *matter* of exactly the same kind of argument as their own upon *attraction*, so that, in fact, they must assume a principle as to *matter* which they immediately proceed to oppose as to *attraction*. [See BERKELEY, IMMATERIALISM.] Again, in

speaking of the place where matter *is*, they assume that the boundary of impenetrability is the same as the boundary of colour; a thing not only unproved, but from several circumstances unlikely. [See REFLEXION.]

2. We have those who would substitute pure hypothetical causes, such as Newton declines entering into, to explain the phenomenon of attraction. One writer requires no more than that all bodies should be composed of two distinct sets of particles, the one set of water, the other of some volatile fluid from which he thinks he deduces attraction; another is satisfied with an efflux and reflux of a fluid from and to the sun, to cause what he denominates the centripetal and centrifugal forces; evidently confounding the nature of the two in a manner which could not have been done by any person who had read Newton. A third fills the whole universe with streams of matter which are always passing through every point in every direction. On all these we shall only observe, that, in their attempts to produce an explanation of the phenomenon, they admit the phenomenon itself, which is all that Newton contended for; but as their motto is that of the Templars, *Semper feriatur Leo*, they must have Newton on the other side, which is done by making him the advocate of what we have called *physical* attraction.

3. We have those who leave out of view the main fact, that Newton explains phenomena as they really are, and who treat the *results* as hypothetical, as well as the *principle*. 'Let the idea,' says one writer, 'of particles of matter attracting each other be impressed upon the mind, and it will then dilate upon their mutual actions, calculate the density of substances composed by them, whirl them at pleasure in empty space, and show in what manner their motions will be disturbed by the actions of each upon the other.' But it is here forgotten that the 'whirls' alluded to were not made 'at pleasure,' but they were 'whirls' actually taking place which were examined, in order to see how they did whirl. Newton laid by his theory of attraction for years, as a forgotten thing, because he found that, with the received notions of the earth's magnitude, it would not give the moon the motion which she is actually found to possess: it was only when he received the more accurate measurement of Picard that he resumed his inquiry. Did he whirl his planets 'at pleasure?'

4. Another class of objectors cannot conceive how attraction can be, and therefore they reject it. This argument is wholly unanswerable, because it is impossible to see on what part of the subject it bears, or how it is shown to be unreasonable to admit nothing as proved, except what can be conceived and accounted for. Nothing, except an absolute contradiction in terms, can be rejected on this ground.

5. All the above objections have been at one time or other advanced by men of knowledge: there remains one class more, namely, that of men who, being ignorant of mechanics, deduce from wrong reasonings results which are not found in the heavens, on which they deny the truth of the principle. To this class, we are happy to say, personal aspersion, and imputations of intentionally misleading others, have been for the most part confined. The common mistake is a confusion between the words *velocity* and *force*; being much the same as if they confounded the drops which are pouring into a cistern for the time being, with the whole body of rain in the cistern itself. We quote another instance. A certain traveller remarks that it cannot be that the sun attracts a planet, at the very time when the planet is flying off from it. 'What more could it do, if it were really repelled?' He does not see that the same argument applies to a stone thrown up into the air; and moreover, that what it could do more, if really repelled, would be to describe a *convex* curve, instead of one always *concave* towards the centre of force. To those who have any acquaintance with mechanics it is unnecessary to say anything upon such objections: to others who have not, we recommend, if they form an opinion upon this question, which it is noways necessary they should do, to follow either those who have studied it, or those who have not, whichever they have found most advantageous in the common business of life.

The history of attraction, independently of that of astronomy, consists in some scattered hints upon the principle, to be found in writers of all ages, previous to the time of Newton; sometimes as a mere word expressive of an unknown cause, but more frequently upon the assumed principle that like things must always move towards like. Mention of something of the kind is found in Aristotle, Plutarch (who records it as a very antient opinion that the moon's centrifugal tendency was balanced by her weight), Lucretius, and other antient writers. Roberval, Kepler, Galileo, Borelli, and others revived the idea, but without deducing any phenomena, except that of the descent of falling bodies, which was explained by Galileo. Bouillaud suggested that the law of attraction must be the inverse square of the distance; but without any substantial reason. Huygens found the law of the centrifugal and centripetal forces of a body moving in a circle; and Hook described the principal phenomena in 1674, in terms remarkably curious [see HOOK], but without deducing any of the heavenly motions. The story, therefore, of Newton's being led to the notion of attraction by the fall of an apple, is most probably incorrect; though his thoughts might have been turned to the subject by such an incident. Indeed, here, as in the case of the prismatic spectrum, our idea of Newton's power is enhanced by knowing the fact that the notion, and even the very law, had already been in such hands as those of the men we have mentioned. Newton was the first who showed that Kepler's laws [see ASTRONOMY] were necessary, upon the supposition of an attraction inversely as the square of the distance; and impossible upon any other.

On the continent, the Cartesian doctrines generally prevailed till Maupertius, in 1732, first broached the question, in his *Discourse on the Figure of the Stars*. For the progress of the application of the principle since that time, see ASTRONOMY.

ATTRITION, from the Latin, means the act of rubbing together. For its effects, see FRICTION, HEAT.

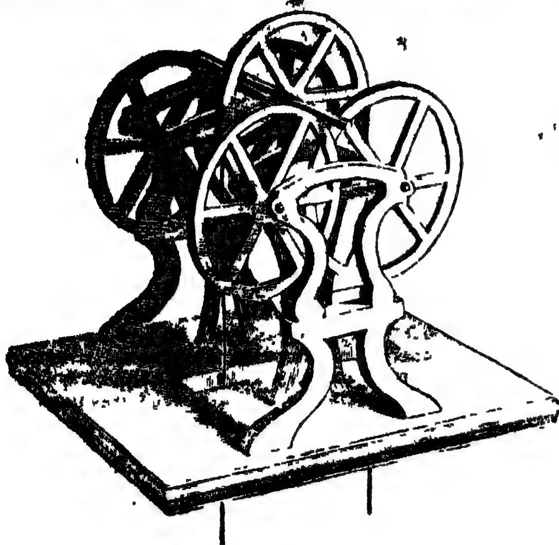
ATTWOOD, GEORGE, was born in 1745, took a distinguished degree at Cambridge in 1769, and afterwards became fellow and tutor of Trinity College in that university. He gave public lectures in experimental philosophy, and died in 1807. He is known by his treatise *On the Rectilinear Motion and Rotation of Bodies*, Cambridge, 1784, which continued for some time to be much read in the university; by some papers in the *Phil. Trans.*; by his tracts on *Bridges*, 1801 and 1804; and by a contrivance known by the name of *Attwood's Machine*, the principle of which merits some notice.

When a constant or uniform force acts upon a mass, it produces equal accessions of velocity in equal times, and the whole distances described are as the squares of the times: that is, whatever length is described in the first second, four times as much is described in the first two seconds, nine times as much in the first three, and so on. [See ACCELERATING FORCE.] That is, the length described during the first second being called 1, that described during the second second is 3, that during the third 5, and so on. Where the weight of a mass is the pressure applied, and the *mass itself only* is moved, that is, where a body falls freely *in vacuo*, the velocity created in every second is found to be $32\frac{1}{6}$ feet, and the spaces described in successive seconds are $16\frac{1}{12}$ feet, three times $16\frac{1}{12}$ feet, five times $16\frac{1}{12}$, &c. These are distances too great on which to try experiments; and Attwood's machine is a method of contriving systems which shall move under constant forces of less amount, so that the space described during four or five seconds shall not require a very great fall. The principle made use of is one which is well known in mechanics, namely, that if a pressure A, acting uniformly upon a mass B, produce a certain velocity per second, it will only produce half that velocity when acting on a mass twice as great as B, &c., and will produce twice as much velocity in a mass half as great as B, &c. Suppose, for instance, weights of six and seven pounds hang over a pulley, the weight and friction of which we neglect for the present; if both weights were six pounds, the machine would not move: therefore, the moving pressure is the one pound by which the one weight exceeds the other. This weight, if it had only its own mass to move, or if it fell freely, would generate $32\frac{1}{6}$ feet of velocity per second; but before this system can move, $6+7$ or 13 pounds must be stirred by 1 pound, and there will only be the 13th part of $32\frac{1}{6}$ feet of velocity produced in one second, that is, about $2\frac{1}{2}$ feet. Therefore, in one second, the heavier weight will fall only $1\frac{1}{4}$ foot; and in 5 seconds, 25 times as much, or 30 feet. And the velocity acquired may be reduced in any proportion, by making the weights more nearly equal.

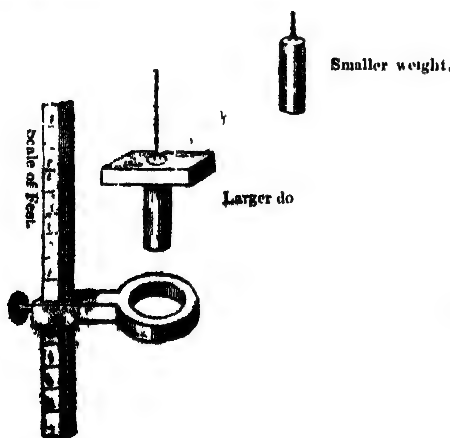
Attwood's machine is a pulley, the pivots of which, instead of being placed in a block, are sustained on FRICTION WHEELS (which see), to diminish the friction. Two weights

are hung over this by a string; and the mass moved consists of the two weights, the pulley and the friction wheels. But it is proved in mechanics that the effect, both of having the mass of the wheels to move, and of the friction, is a constant retarding force: for instance, in the preceding illustration, the machine might be so constructed that the effect should be to make the system move as if the larger weight were 6¼ pounds instead of 7, and the pulley were without density and friction. The velocity can be so far reduced as to render the resistance of the air insensible.

The length described in any time is measured by a vertical scale of feet, placed close to the line of motion of one of the weights. To measure the velocity acquired at any point, the moving pressure (the excess of one weight above



the other) must be taken off, in order that there may be no fresh accession of velocity, or that the system may proceed only with the velocity acquired. This is effected by making the larger weight in two parts, one part equal to the smaller weight, and the other of course to the excess or moving pressure. The latter is so formed that it cannot pass through a certain ring, while the former can. By fixing this ring to any required point of the scale of feet, the moving pressure is taken off when the larger weight passes through it.



Attwood's machine is not a very satisfactory proof of the laws of uniformly accelerated motion, because the constancy of the retardation caused by the complicated motion given to the pulleys, and by the friction, is a more difficult experimental fact than the one to be proved. Of the four principles—1. the law of uniformly accelerated motion—2. the constancy of the retardation caused by the having to communicate every acceleration also to the pulley and friction wheels—3. the constancy of the retardation arising from friction—4. the smallness of the resistance of the air to small velocities—this machine may be made to prove any one to a spectator who admits the other three.

A'TYA (Zoology), a genus of crustaceous animals, thus characterized by Leach:—

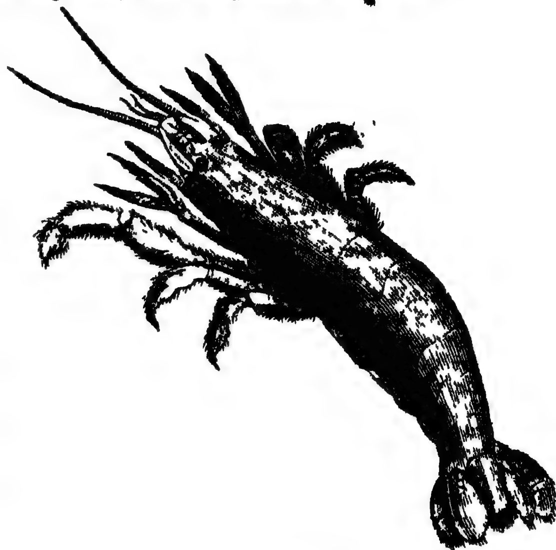
Antennæ, interior, furnished with two bristles, inserted in the same horizontal line; *exterior*, inserted below the interior, about the length of the body, furnished at the base with a great scale which is unidentate, or one-toothed externally.

Pedipalpi external, the last joint shortest; *flagrum* elongated.

Feet. The two anterior pairs equal, penultimate joint shortest; last joint divided; *laciniæ* equal, furnished at the apex with long cilia; third pair large, unequal, furnished with a very short nail; two posterior pairs furnished with a moderate-sized nail.

Tail, with the exterior *lamella* bipartite.

'It forms,' says Leach, 'a peculiar subdivision of the shrimp family, and one species only is known.'



[Atya scabra.]

A'TYLUS (Zoology), a genus of crustaceous animals, thus characterized by Leach:—

Antennæ composed of four joints, the last of which is formed of several minute articulations: upper ones rather shortest, with the second longer than the third joint; under ones with the second joint rather shorter than the third.

Eyes slightly prominent, inserted on a process between the upper and lower antennæ.

Legs fourteen; first and second pair furnished with a small compressed hand, which has a moveable thumb; the other pairs having only a simple claw.

Tail, on each side, with a triple series of double styles; upper part on each side armed with a small spine or style.

Body (including the head) composed of twelve joints. Example—*Atylus carinatus* (*Gammarus carinatus*.) Fabr.



[Atylus carinatus.]

AU, or AUE, is the termination of the names of many places in Germany. It signifies, in its restricted sense, *meadow*, but is often applied to the tract of level and fertile land on the side of a river, in which sense it is used in Scotland and the north of England, in the form of *haugh*, as in North-haugh, &c. It is also applied to the valley of a river, such as in Scotland is termed a *carse*, as in the instance of the Wetter-au, or valley of the Wetter a beautiful and fertile district in Hesse Darmstadt.

AUBAGNE, a small town in France, in the department of Bouches du Rhône. It is not far from the sea-coast, and on the road from Marseilles to Toulon, ten miles from the former place. The country around is pleasant. The trade of the town is chiefly in tiles and wine. Coal is found in

the neighbourhood. The inhabitants amounted, in 18.., to between 5000 and 6000. We have no authority of later date except the *Guide des Voyageurs* of M. Reichard, which gives the population at 6000.

Before the Revolution, there was a nunnery of the order of St. Augustin; and the assembly of the states of Provence was sometimes held here. The Abbé Barthélemi, author of the *Travels of the Younger Anacharsis*, was born in the neighbourhood of Aubagne. Various antiquities have been found in the environs. (*Dictionnaire Universel de la France.*)

AUBAINE, the name of the prerogative by which the sovereigns of France formerly claimed the property of a stranger who died within their kingdom, not having been naturalized. It also extended to the property of a foreigner who had been naturalized, if he died without a will, and had not left an heir; as likewise to the succession to any remaining property of a person who had been invested with the privileges of a native subject, but who had quitted, and established himself in a foreign country. (See *Merlin, Répertoire de Jurisprudence*, tom. i. p 523.) It is called, in the French laws, the *Droit d'Aubaine*. Authors have varied in giving its etymology. Nicot (*Thresor de la Langue Françoyse tant ancienne que moderne*, fol., Paris, 1606) says it was anciently spelt Hobaine, from the verb *hober*, which signifies to remove from one place to another; Cujacius (*Opera*, fol., Neap. 1758, tom. ix., col. 1719) derives the word from *advena*, a foreigner or stranger; and Du Cange (*Glossar.* v. Aubain) from *Albanus*, the name formerly given to the Scotch, who were great travellers. Ménage (*Dict. Etym.* fol., Paris, 1694) says, some have derived the word from the Latin, *alibi natus*, a person born elsewhere, which seems the best explanation. (See also Walafridus Strabo, *De Vitâ S. Galli*, l. ii., c. 47.)

This practice of confiscating the effects of strangers upon their death was very ancient, and is mentioned, though obscurely, in one of the laws of Charlemagne, A.D. 813. (*Capitularia Regum Francorum*, curante P. de Chiniac, fol. Paris, 1780. col. 507, § 6.

The Droit d'Aubaine was originally a seignorial right in the provinces of France. Brussel, in his *Nouvel Examen de l'Usage général des Fiefs en France pendant le* xi., *le* xii., *le* xiii., *et le* xiv. *siècle*, 4to. Paris, 1727, tom. ii., p. 944, has an express chapter, 'Des Aubains,' in which he shows that the barons of France, more particularly in the twelfth century, exercised this right upon their lands. He especially instances Raoul, Comte de Vermandois, A.D. 1151.

Subsequently, however, it was annexed to the Crown only, inasmuch as the king alone could give the exemption from it, by granting letters of naturalization.

Various edicts, declarations, and letters patent relating to the Droit d'Aubaine, between the years 1301 and 1702, are referred to in the *Dictionnaire Universel de Justice* of M. Chasles, 2 tom. fol., Paris, 1725; others, to the latest time, are given or referred to in the *Code Diplomatique des Aubains*, par J. B. Gaschon, 8vo., Paris, 1818. The Duc de Levis, in his speech in the Chamber of Peers, when proposing its final abolition, 14th April, 1818, mentioned St. Louis as the first monarch of France who had relaxed the severity of the law (compare *Etablissemens de S. Louis*, l. i. c. 3.); and Louis le Hutin as having abolished it entirely in 1315 (compare the *Recueil des Ordonnances du Louvre*, tom. i., p. 610), but, as it turned out, for his own reign only. Exemption from the operation of the Droit d'Aubaine was granted in 1364 by Charles V. in favour of persons born within the states of the Roman Church. Louis XI., in 1472, granted a similar exemption to strangers dwelling at Toulouse; and Francis I., in 1543, to strangers resident in Dauphiné. Charles IX., in 1569, allowed exemption from it to merchant-strangers frequenting the fairs at Lyons. Henry IV., in 1608, granted exemption to the subjects of the Republic of Geneva. Louis XIV., in 1702, to the subjects of the Duke of Lorraine. (Chasles, *Dict.* tom. i. pp. 265. 267.) The Swiss and the Scotch of the king's guard had been exempted by King Henry II. (Bacquet, *Traité de Droit d'Aubaine*, p. i., c. 7.)

Partial exemptions from the Droit d'Aubaine were frequently conventional, and formed clauses in treaties, which stipulated for reciprocal relief to the subjects of the contracting parties; these exemptions, it is probable, continued no longer than the peace which the treaty had procured, and some related to moveable goods only.

In the treaty of commerce between England and France, in 1606, the *Jus Albinatûs*, as it is termed, was to be abolished as related to the English: 'ita ut in posterum aliquo modo jure Albinatûs fisco addici non possint.' (Rym. *Fœd.* tom. xvi., p. 646.) Letters-patent of Louis XIV., in 1669, confirmed in the Parliament of Grenoble in 1674, exempted the Savoyards; and this exemption was confirmed by the Treaty of Utrecht, in 1713. The inhabitants of the Catholic cantons of Switzerland were exempted by treaty in 1715. The particulars of numerous other conventional treaties are recorded in M. Gaschon's work, in the speech of the Duc de Levis already referred to, and in the 'Rapport' from the Marquis de Clermont Tonnerre to the French Chamber of Peers, printed in the *Moniteur* for 1819, pp. 96-98.

Louis XV. granted exemptions, first to Denmark and Sweden; then, in the treaty called the 'Family Compact,' to Spain and Naples; to Austria, in 1766; to Bavaria, in 1768; to the noblesse of Franconia, Suabia, and the Upper and Lower Rhine, in 1769; to the Protestant Cantons of Switzerland, in 1771; and to Holland, in 1773. In Louis XVIth's reign, other treaties of the same kind were made with Saxony, Poland, Portugal, and the United States. The abolition of the Aubaine, as it related to Russia, was a distinct article of another treaty; and, finally, by letters-patent, dated January, 1787, its abolition was pronounced in favour of the subjects of Great Britain.

The National Assembly, by laws dated August 6, 1790, and April 13, 1791 (confirmed by a constitutional act 3d of September, 1791), abolished the Droit d'Aubaine entirely. It was nevertheless re established in 1804. (*Moniteur* for 1818, p. 551.) The Treaty of Paris, 30th of April, 1814, confirmed the exemptions from the Aubaine as far as they were acknowledged in existing treaties. The final abolition of the Droit d'Aubaine, as already mentioned, was proposed by the Duc de Levis, April 14, 1818, and passed into a law July 14, 1819; confirming the laws of 1790 and 1791. Foreigners can now hold lands in France by as firm a tenure as native subjects.

The Droit d'Aubaine was occasionally relaxed, by the kings of France, upon minor considerations. In the very early part of the 14th century, an exemption was obtained by the University of Paris for its students, as an encouragement to their increasing numbers. Charles V. granted the privilege in 1364 to such Castilian mariners as wished to trade with France. In 1366 he extended it to Italian merchants who traded to Nismes. The fairs of Champagne were encouraged in the same manner; and exemptions to traders were also granted by Charles VIII. and Louis XI. Francis I. granted the exemption to foreigners who served in his army; Henry IV. to those who drained the marshes, or worked in the tapestry-looms. Louis XIV. extended the exemption to the particular manufacturers who worked at Beauvais and the Gobelins; then to the glass-manufacturers who had come from Venice; in 1662, to the Dunkirkers, whose town he had acquired by purchase from England; and, lastly, to strangers settled at Marseilles, that city having become the entrepôt of products from the Levant.

Ambassadors and persons in their suite were not subject to the Droit d'Aubaine; nor did it affect persons accidentally passing through the country. Still it was no small disgrace to the French law that this barbarous custom should have so long remained among a people so highly civilized. Bouteiller, one of their own jurisprudents, who wrote as early as the fifteenth century, calls it 'un Droit hayneux.' (*Somme Rural*, fol., Lyon, ..., l. ii.)

That the Droit d'Aubaine existed ..., in the papal states, in the eleventh, twelfth, and thirteenth centuries, seems established by Muratori, *Antiq. Ital. Medii Ævi.* fol. Mediol. 1739, tom. ii., col. 14.

An extensive treatise on the Droit d'Aubaine has been already quoted in the works of Jean Bacquet, avocat de Roi en la Chambre de Thresor, fol., Paris, 1665. See also *Memoires du Droit d'Aubaine*, at the end of M. Dupuy's Traitez touchant les Droits du Roy très Chrestien, fol., Par. 1655; and the *Coutumes du Bailliage de Vitry en Perthois*, par Estienne Durand, fol. Châlons, 1722, p. 254. But the most comprehensive view of this law, in all its bearings, will be found in the *Répertoire Universel et Raisonné de Jurisprudence*, par M. Merlin, 4to., Paris, 1827, tom. i., p. 523, art. *Aubaine*; tom. vii. p. 416, art. *Heritier*. The *Moniteurs* of 1818 and 1819 contain abstracts of the discussions while the abolition was passing through the two Chambers at Paris. See the latter year, pp. 314, 315, 509,

719, 728, 729. The chief passages in the former have been already quoted.

AUBE, a river in France, which rises in the department of Haute Marne, in the range of hills which connects the Côte d'Or with the Vosges. The waters of many of the tributaries of the Seine flow from the same range, as well as those of the Seine itself, the source of which is about 26 miles south-west of that of the Aube. The course of the two streams is for some distance nearly parallel, until the Aube, after flowing about 80 or 85 miles, turns gradually more to the westward, and unites its waters with those of the Seine, near the little town of Romilly.

The whole length of the Aube is about 113 miles; and the distance in a straight line from its source to its junction with the Seine is about 87 miles. It does not receive any tributary of importance. The Aujon and the Voire, which fall into it on the right bank, and have a course of about 30 miles each, are the largest. The principal places by which it passes are La Ferté sur-Aube, Clairvaux (once famed for a wealthy abbey), Bar-sur-Aube, and Arcis-sur-Aube; at which last, about 22 miles above its junction with the Seine, it becomes navigable. (Malte Brun Brue's *Map of France*.)

AUBE, a department in France, taking its name from the above-mentioned river, by which it is traversed in a direction nearly N W. This department is bounded on the N. by that of Marne; on the E by that of Haute Marne (Upper Marne); on the S. by those of Côte d'Or and Yonne (which last also bounds it on the S.W); and on the W by that of Seine et Marne. Its greatest length is from E S.E to W N.W., sixty eight miles, and the breadth, measured at right angles to the above dimension, is fifty six miles The superficial contents are about 2311 English square miles, and the population (in 1826) was 242,000 nearly, giving about 103 persons to the square mile

This department, which corresponds to part of the former province of Champagne, has no mountains, nor any considerable elevations. The surface consists of undulating ridges The Seine and the Aube traverse it, at first with courses nearly parallel to each other, then turning more towards the W, they unite their waters near the N W extremity of the department The Seine is navigable from Troyes, the capital of the department, and the Aube from Arcis. The mineral treasures of the district are inconsiderable. there is a quarry of good marble at Chassenay, near Bar-sur-Aube.

The soil is very different in the north-west and south east parts of the department. The former is unfertile, bearing only oats, rye, and buck-wheat, and these in such scanty crops, that a great part of the land is left uncultivated This district is bare of trees; though it is thought that the resinous woods, and those which thrive on a light soil, would succeed This sterile tract had in derision of its barrenness the name of Champagne Pouilleuse (literally, *Lousy Champagne*) The south-east district is far more fertile though it has the same subsoil as the other (chalk), yet the depth of the alluvial deposits is much greater. The land is in some places so heavy as to require many horses for the plough Grain is produced abundantly, and potatoes form a considerable object of attention; but wine is the chief article of growth, and a considerable quantity of it is exported. Horses are numerous; but oxen and sheep are scarce. The woods, which exist in several parts, and the ponds or lakes (étangs), furnish poultry, game, and fish in abundance. The production of honey is a branch of industry.

The trade of the department is considerable. Cotton goods and hosiery are manufactured at Troyes, Clairvaux, Romilly near the confluence of the Seine and Aube, and other places. Leather is tanned and dressed at Troyes. Small wares for export to Senegal are made in different places, also glass: and these various manufactures, with their wine, honey, and other natural productions, enable the inhabitants to carry on a trade, which is facilitated by the two navigable rivers, Seine and Aube, and by the roads from Paris to Dijon, Béfort, and Besançon, which cross the department.

The chief towns are Troyes, the capital, on the Seine (population in 1826, 26,000); Arcis-sur-Aube (population 3000); Bar-sur-Aube (population 4000); Bar-sur-Seine (population 2000); and Nogent-sur-Seine (population 3000), which are all of them seats of subprefects. [See ARCIS, BAR, NOGENT, and TROYES.] Brienne (celebrated for its military school, the place of Napoleon's education) has a population of less than 2000. Romilly and Clairvaux are both the seats of small cotton manufactories, and the latter is also celebrated for its abbey, of which St. Bernard was the first abbot. The united towns of Ricey-Haut, Ricey-Bas, and Ricey-Haut-rive, possess a population of about 4000.

The department of Aube sends three deputies to the chamber, and is comprehended in the jurisdiction of the cour royale (*assize-court*) of Paris. It forms the diocese of Troyes; the bishop of which is suffragan to the archbishop of Sens and Auxerre. (MM. Malte-Brun and Balbi; *Dictionnaire Universel de la France*.)

AUBENAS, a town in France, in the department of Ardèche. [See ARDECHE.]

AUBIGNE', THEODORE AGRIPPA D', the Huguenot historian of his time, was born in 1550, near Pons, in the province of Saintonge. The union of valour with learning was the great aim and boast of the Huguenots, a union which gave rise to many singular and great characters. The utmost care was bestowed upon D'Aubigné's education. When four years old he had a preceptor who taught him four languages at once, Latin, Greek, and Hebrew, together with his mother tongue. It is said that he knew them at six years of age, and was able to make a translation of Plato's Crito at seven. But independently of the absurdity of this story, we must observe that these facts are taken from D'Aubigné's Memoir of his private life, and that he is one of those braggart writers who are too apt to sacrifice truth to vanity. His father was a bold and turbulent Huguenot, and had been engaged in the conspiracy of Amboise While conducting his son to Paris they passed through this town. Perceiving the heads of his brother conspirators still exposed over the gates, the elder D'Aubigné adjured his son 'never to spare his head, in order to avenge those noble victims, an exhortation which was not lost upon the son After some time spent in the colleges of the capital, young D'Aubigné was obliged to fly from persecution Being taken with others, and narrowly escaping death, he succeeded in getting off to Orleans, where in the ensuing siege his father received a wound, of which he died He was then placed for two years under the superintendence of De Beze, at Geneva. Here, and afterwards at Lyons, he pursued a singular course of study, consisting of the Rabbins, Pindar, mathematics, and magic, the latter with the resolve of never making use of it At the breaking out of the third civil war he escaped from his guardian, who kept him close, and joined the Hugenot bands, which, in 1570, lived at free quarters in the south of France.

When peace returned, love put poetry into his head, and awakened his scribbling propensities, but these again were put to flight by the massacre of St Bartholomew. Soon afterwards he entered the service of the king of Navarre, the future Henry the Fourth Thus installed at court, D'Aubigné rendered himself remarkable for his boldness, talent, oddity, and impertinence. He abounded in repartee—his hands were full of quarrels, he wrote a tragedy called '*Circe*, and seems to have excited some admiration, but little friendship As a partisan, however, D'Aubigné was a most valuable follower, and as such Henry of Navarre both prized and used him When war broke out, D'Aubigné not only accompanied the armies, but shared in the personal adventures of the prince, some perilous, some ludicrous; for Henry was as fond of disguise and gallantry as of feats of arms. The king of Navarre had little wherewith to reward such service he was pitiably poor, and D'Aubigné had neither the disinterestedness nor devotion of Sully. He accordingly took advantage of his familiarity with the prince to push his frankness to insolence, he vented his discontent in sarcasms, and at last wore out the patience of the best-natured of kings and companions In his private memoirs, D'Aubigné has assigned as the cause of his disgrace, his refusal to serve the prince in his amours He also mentions, that on his return from a perilous and important expedition the monarch rewarded him merely with his picture; and he even goes so far as to say, that Henry had determined to get him poniarded and thrown into the river. But D'Aubigné has contradicted these effusions of his bile by subsequent declarations of praise and attachment.

At any rate he quitted the service of Henry in 1577. Soon after he fell in love with Mademoiselle de Lezay, married her, and rejoined the king of Navarre, But he

had made many bitter enemies by his sarcastic behaviour, and their influence again drove D'Aubigné from court. In order to be avenged, he determined to turn catholic, if possible—a resolve that he ingenuously avows; and he betook himself to the perusal of the controversial writers of that party, among whom Bellarmin made most impression on him. The result of his efforts and studies was, however, to render him a firmer protestant than before. In this, he owns, Whittaker's *Prelections* had considerable influence. In 1587 we find D'Aubigné again in the service of Henry, and engaged at the battle of Coutras. In the following year he was rewarded with the government of Maillezais.

The possession of a fortress was at that day the great guarantee of independence. It instantly raised an officer to political importance, and gave him almost the rank of a grandee. The acquisition of this great privilege was not likely to render so turbulent a personage as D'Aubigné more obsequious or mild. He was in a little time again at variance with Henry, embracing the party of the Huguenots, and openly preferring their interests to court favour. Nevertheless, when it was necessary to confide the Cardinal of Bourbon to a trusty guardian, Henry selected D'Aubigné, notwithstanding the expostulation of his counsellors, adding, that D'Aubigné's word was a sufficient guarantee for his faith.

From the period of Henry's desertion of protestantism, D'Aubigné was one of the firmest supports of the Huguenot interests, always representing them in their assemblies, often in their controversies, and in their negotiations with the court. D'Aubigné asserts that the ruin of the Huguenots and the downfall of their cause were owing to the corruption of their chiefs, who for the most part received bribes or places, and were thus induced to relax in their opposition and independence. Nor does he exempt Sully himself from this charge. As to D'Aubigné, one thing is certain, that he might have been rich, like his comrades, and that he was almost the only one who remained poor. His voice was always raised for Huguenot independence against the insidious proposals of the court. On one occasion he conducted a controversy with Cardinal Du Perron, and engaged for the Huguenots that they would submit to what could be proved to have been the practice of the church for the first 400 years of Christianity. 'Grant us forty more in addition,' said the cardinal, wishing to include the Chalcedonian Council. 'I will,' replied D'Aubigné. When expostulated with for his concessions, he answered, 'Does not the cardinal own by his demand of forty more years, that the traditions of the first four centuries are at variance with his propositions?' Numerous controversial tracts proceeded from his pen at this period. But the chief fruit of his residence at Maillezais was '*The History of his own Times*,' a valuable document for the Huguenots of France. It has been compared to the work of De Thou, and even preferred to it. De Thou, however, wrote a history, and D'Aubigné a memoir, his work being a lively picture of passing events, feats of war, and intrigues of court, in which the characters of the personages concerned are sketched by a satiric but lively pen. The Catholics did their utmost, first to prevent D'Aubigné from writing it, then to suppress it when written. The last volume was printed at Maillezais in 1619, and in the following year it was condemned by the Parlement of Paris to be burned. The publication increased the hatred of the queen to D'Aubigné. The ministry had made frequent overtures to purchase the possession of his fortress; and when at last he found it no longer tenable, he gave it up, not to the court, but to the chief noble of the Huguenot party, the Duke de Rohan. Having thus closed his political career, D'Aubigné retired to Geneva. He arrived there in September, 1620, and was most honourably received. He lived in exile ten years, during which he employed his time in study, in writing, and in directing the fortifications raised at that time around the Swiss towns, and among them Berne and Basle, as bulwarks of the protestant interest. The French court ceased not to disturb and persecute him, and, according to his own account, to procure his condemnation to death for making use of the materials of a church in building. 'It was the fourth judgment of death pronounced against him;' such sentences, however, were not always serious in those days. Neither his condemnation, nor his age prevented D'Aubigné from espousing a noble lady of Geneva at this period. His last years were imbittered by the scandalous conduct of his son Constant, afterwards the father of the celebrated Mad. de Maintenon. D'Aubigné died in 1630, and lies buried in the church of St. René, at Geneva: over him is a Latin epitaph written by himself.

The works of D'Aubigné are numerous and various. They consist of poems, dramas, controversial tracts, his great history, memoirs of himself, and various satirical writings against his cotemporaries. Of these the principal are, the *Confession Catholique de M. De Sancy*, and *Les Aventures du Baron de Fœneste*. The first is directed against De Sancy, finance minister, and against Cardinal du Perron. The latter is supposed to mean the Duc D'Epernas, with whom D'Aubigné had frequent quarrels.

AUBIN, ST., a town in the island of Jersey, situated opposite to St. Helier, the capital of the island. The walk from the one to the other is 3½ miles, and is very delightful. On the left is a beautiful view of the bay to which this little town gives a name; on the right is the rich and fertile valley of St. Laurens, abounding with neat cottages and charming landscapes. The air of St. Aubin is preferred to that of St. Helier; house-rent and lodgings are cheaper, and the situation is certainly more retired. The prospect from the adjoining hill, called 'Noirmont,' to the south of this town, is very fine and extensive. St. Aubin consists of one principal street of about fifty houses, with as many more scattered in different directions. There is here a chapel of ease, a good meeting-house for the independent dissenters, which has an endowment; and a Wesleyan methodist congregation. The population of the parish of St. Brelades, in which this town stands, was, in 1831—males, 953; females, 1116; total, 2069;—composing 342 families: of which 128 were employed in agriculture, 101 in trade, manufacture, and handicraft, and 113 not comprised in the two preceding classes. The inhabited houses were 307, uninhabited 9, and 3 building; total, 319. The church is neither adorned with spire nor tower: it was consecrated 27th May, A.D. 1111. The pier is capacious; but its site not having been very judiciously chosen, the depth of water, except in spring tides, will not admit of large vessels entering the harbour: it is however good, and strong-built. There is also a market-place in this town. St. Aubin is defended by a little fortress called 'The Tower, or St. Aubin's Castle,' with a projecting pier, within which vessels, even men-of war, may lie in safety: this fortification is insulated at high-water. The police of St. Brelades is composed of a constable (an officer similar to that of mayor in England), two centeniers, and fifteen police officers, who constitute the jury called 'Enditement,' and four 'Vingteniers,' who have the power of seizing on their vingtaine only. (*Communication from Jersey.*)

AUBREY, JOHN, an eminent English antiquary, was born at Easton Piers, in Wiltshire, on March 12 (according to the memoir prefixed to his *Antiquities of Surrey*, but according to that prefixed to the second edition of his *Miscellanies*, on November 3), 1625-6. He was the eldest son of Richard, only son of John Aubrey of Burleton, in Herefordshire, by Deborah, daughter and heiress of Isaac Lyte of Easton Piers, by whom that estate came into his family. (*Mem. prefixed to History of Surrey*, p. iii.) He received his education in the grammar-school at Malmesbury, under Mr. Robert Latymer, who had also been preceptor to the famous Thomas Hobbes, with whom afterwards, notwithstanding disparity of years, Mr. Aubrey formed a lasting friendship. In 1642 he was entered a gentleman commoner of Trinity College, Oxford, where he pursued his studies diligently; making the natural history and antiquities of England, at the same time, his peculiar delight. Here he formed an acquaintance with Anthony à Wood, to whose collections for the history of the University and its writers he became a contributor (*Life of Wood* prefixed to Bliss's edit. of the *Athenæ Oxon.* p. lx.), as well as to the *Monasticon Anglicanum*, then recently undertaken by Dodsworth and Dugdale. In 1646 he became a member of the Middle Temple, but the death of his father, in 1652, prevented his pursuing the law as a profession. He now succeeded to several estates in the counties of Wilts, Surrey, Hereford, Brecknock, and Monmouth; and in his *Miscellanies* he acquaints us that he had also an estate in Kent. In 1656 he became one of the club of commonwealth-men, formed on the principles of Harrington's *Oceana*, printed in that year. Wood (*Athen. Oxon.* edit. Bliss, vol. iii. col. 1119.) says, 'Their discourses about

government and of ordering a commonwealth were the most ingenious and smart that ever were heard, for the arguments in the Parliament House were but flat to those. This gang,' he adds, 'had a balloting-box, and balloted how things should be carried, by way of *tentamens*; which being not used or known in England before, upon this account the room every evening was very full.' The club however was broken up in 1659. In 1660 Mr. Aubrey went into Ireland, and upon his return, in the month of September that year, he narrowly escaped shipwreck near Holyhead. (*Mem. ut sup.* p. vi.) His notes inform us that he afterwards suffered another sort of shipwreck. He says, 'On November 1, 1661, I made my first addresses in an ill hour to Joan Sommer.' When he married is uncertain; but from this remark we gather that in that state he enjoyed no great felicity. In 1662 he became a fellow of the Royal Society. In 1664 he was in France. His estates, between lawsuits and mismanagement, now became encumbered, and about 1666 he seems to have disposed of several; that at Easton was parted with in 1669 and 1670. (*Mem.* p. xi.) In the space of four years he was reduced not only to straits but to indigence. Yet his spirit remained unbroken. 'From 1670,' he says, 'I thank God, I have enjoyed a happy delitescency.' This obscurity, which he calls happy, consisted in following up the bent of his genius, while he owed his subsistence to the kindness of his friends, and in labouring to inform that world in which he knew not how to live. His chief benefactress was the then Lady Long, of Draycot, in Wiltshire, in whose house he had an apartment, and by whom he was generously supported as long as he lived. Dr. Rawlinson says (*Mem.* p. xii.) 'that he was on his return from London to Lady Long's house, when his journey and life were concluded at Oxford, where it is presumed he was buried, though neither the time of his obit nor his place of burial can be yet discovered.' The writer of Aubrey's life in the *Biographia Britannica* (vol. i. p. 319), conjectures that he died about 1700. Sir William Musgrave, in his *Obituary*, preserved in the British Museum, upon manuscript authority, says Aubrey died in 1697; and a note in Browne Willis's copy of Aubrey's *Surrey* adds that he was 'buried in St. Michael's church, Oxon. in Jesus College aisle.'

Anthony à Wood, who probably considered himself injured by the printing of some of the information which he had received from Aubrey, gives a peevish character of him, and says, 'he was a shiftless person, roving and magotie-headed, and sometimes little better than crased; and being exceedingly credulous, would stuff his many letters sent to A. W. with folliries and misinformations, which sometimes would guide him into the paths of error.' (*Ath. Oxon.* Bliss's edit. *Life*, p. lx.) Hearne informed Baker, the Cambridge antiquary, that it was Aubrey who gave Wood that account of the Lord Chancellor Hyde, which chiefly occasioned the prosecution against him. Wood used to keep his vouchers. (*Ath. Oxon.* iii. 641.) Malone, in his *Historical Account of the English Stage*, has given a more favourable character of Aubrey, who certainly was a man of good natural parts, considerable learning, and indefatigable application – a great lover of, and diligent searcher into, antiquities. He occasionally wrote Latin poetry, and was considered one of the best naturalists of his day, though credulous (as Wood has remarked) and very strongly tinctured with superstition.

Aubrey's published works are—I. *Miscellanies*, viz., 1. Day-Fatality; 2. Local-Fatality, 3. Ostenta, 4. Omens, 5. Dreams; 6. Apparitions, 7. Voices, 8. Impulses, 9. Knockings, 10. Blows invisible, 11. Prophecies, 12. Marvels, 13. Magick, 14. Transportation in the Air, 15. Visions in a Beril, or Glass, 16. Converse with Angels and Spirits, 17. Corps-Candles in Wales, 18. Oracles, 19. Extasie, 20. Glances of Love, Envy, 21. Second sighted persons. Octavo, London, 1696. Reprinted with additions, octavo, London, 1721, and octavo, London, 1784. II. *A Perambulation of the County of Surrey*; begun 1673—ended 1692. Published by Dr. Richard Rawlinson, under the title of *The Natural History and Antiquities of the County of Surrey*; begun in the year 1673, by John Aubrey, Esq. F.R.S. and continued to the present time, five volumes, octavo, London, 1719.

Dr. Bliss, in a note to Wood's Life prefixed to the *Athenæ*, p. lx., gives the following accurate detail of the MSS. which Aubrey deposited in the museum at Oxford. 1. *The Natural History of Wiltshire*. 1685, two volumes. 2. *Architectonica Sacra*: a curious MS. but unfinished. 3. *A Perambulation of Surrey*: much of this is used in the printed work. 4. *An Apparatus for the Lives of our English and other Mathematical Writers*. 5. *An Interpretation of Villare Anglicanum*. 6. *The Life of Thomas Hobbes of Malmsbury*, made use of by Dr. Blackburne in 'Vitæ Th. Hobbes Auctarium.' 7. *An Idea of Education of Young Gentlemen*. 8. *Designatio de Easton Piers in Com. Wilts*; per me (heu) infortunatum Johannem Aubrey, R. S. Socium. (It consists of several views of the house, gardens, and environs of Easton Piers, drawn in a coarse manner and colouring, but pleasing and expressive.) 9. A volume of letters and other papers of Elias Ashmole's, relating chiefly to Dr. Dee and Sir Edward Kelley. 10. Two volumes of Letters from eminent literary and political characters, addressed to Anthony à Wood, and collected for his use, in three volumes. Most of these have been printed in *Letters transcribed from the Originals in the Bodleian Library and Ashmolean Museum*, two volumes, octavo, Oxford, 1813. Appendix, No. iv.

Beside the works already quoted in the above account of Aubrey, the lives of him in the *Biographia Britannica*, and Chalmers's *Biogr. Dict.* have been consulted; as well as Gough's *Brit. Topog.* i. 262, and Manning's *Hist. of Surrey*, iii. 685, 686.

AUBURN, a thriving town of Cayuga county, about 170 miles west of Albany, in the state of New York. Auburn is favourably situated on the outlet of the Owasco Lake, a fine stream with falls and numerous mill-seats, offering facilities for manufacturing establishments, several of which have been formed here within the last few years. The canal which joins the river Hudson with Lake Erie passes close to the town, and contributes materially to its prosperity. The court-house for the county is situated in Auburn. The population of the town in 1833 was stated to amount to 4000. Auburn contains a theological seminary, founded by the Presbyterians in 1821: it has four professors, a library of 4500 volumes, and (in 1833) fifty four students.

This town is principally interesting as containing the first built of the two state prisons of New York, which have been conducted upon a peculiar system, with a view to the reformation of the prisoners, and have accordingly excited a considerable degree of attention. The principle adopted in the management of the prison at Auburn, is that of depriving the prisoners of social intercourse, and of exacting from them a considerable amount of labour, which is so directed that the criminals are made not only to support themselves, but also to defray all the necessary outgoings of the prison.

The outer wall of the prison incloses a space of ground 500 feet square. The principal building stands at the distance of 100 feet within this wall, and is three-sided, the front being 276 feet, and each of the sides 242 feet long. Besides the keeper's apartments, hospital, chapel, and domestic offices, this building contains 555 cells, capable of holding only one person, each of them being 7 feet long, 3½ wide, and 7 feet high. These cells are perfectly ventilated, they are arranged in five rows, or stories, opening into galleries, and are so managed that no communication can pass between the inmates of neighbouring cells, unknown to the officers of the prison. The space in front of the cells is so perfect a sounding gallery, that a person standing on the ground story can hear even a whisper from the most distant cell at the top.

The system now pursued in this prison is essentially different from that adopted when it was first opened in 1821. It was at that time intended to try the effect of constant solitary confinement in cells, and eighty hardened offenders were accordingly selected from other prisons for the experiment. This plan was pursued for nearly two years, at the end of which time it appeared to be attended with such serious effects on the health of the prisoners, some of whom had become insane, that it was necessarily modified. It might have been feared that the effects of total isolation having proved thus injurious, the whole principle would have been rejected, and the prison suffered to degenerate into an ordinary place of confinement, without further attempts at reforming the prisoners. Happily the idea was not abandoned that solitude might be made to exercise a beneficial influence upon the character of criminals, unaccompanied

by the bad effects which had attended the first experiment. It was conceived that this good effect might be attained by leaving the convicts in their solitary cells during the night, and compelling them to work during the day in society; but obliging them at the same time to preserve absolute silence. The infraction of this rule is followed by severe and immediate punishment inflicted by the keepers with a whip made of raw hide, and the punishment follows the offence so certainly and instantaneously as to be nearly a preventive, the application of the whip being sometimes not required for three months together

All the operations in the prison are conducted with the greatest regularity. The convicts who have previously learned a trade which can be carried on in the prison, are employed upon it; otherwise they are taught some trade, and the keeper is allowed to select such an employment as appears best suited to their powers. The workshops are attached to the outer wall of the prison. The hours of labour vary according to the season. When the length of daylight will allow of it, the prisoners work twelve hours in the day; at other times they labour during the continuance of daylight. When not absolutely at work or at their meals, the convicts are always in their cells, and the discipline of the prison is so strict, that not even a glance of recognition is at any time allowed to pass among the prisoners.

The severity of the system here described is such that it is necessary, in order to justify it, to show that it is productive of considerable benefits. In a report drawn up by commissioners appointed by the legislature of New York to visit this prison, we find the following passage descriptive of some of the advantages realised: 'The separate cells by night, and the silence preserved, always entirely prevent all contamination among the prisoners. By this system every prisoner forms a class by himself, and to all moral and social purposes he is insulated. The novice in crime may work for years by the side of the most expert felon, without making any progress in the mysteries of criminality. The entire separation from all criminal associates, the sobriety of feelings consequent upon temperance and labour, and most of all, the sadness of solitude, must frequently make serious impressions'

The religious instruction of the convicts is not neglected: there are prayers morning and evening. The only book permitted on the premises is the Bible, a copy of which is placed in every cell, and the chaplain of the prison is the only person with whom the convicts can hold unreserved communication.

The system pursued at this prison appears to have a favourable effect upon the health of the convicts. The mortality of the prison in Philadelphia is stated to be in the proportion of 1 to 16⅔. At Newgate, New York, the deaths are in the proportion of 1 to 18½. In the penitentiary at Wethenfield, the discipline of which is similar to that of the prison at Auburn, the proportion is 1 to 44⅘, and in the prison at Auburn itself, the proportion is 1 to 56.

Of the moral effect of the regulations, we may judge from the fact, that while, in the prisons of Pennsylvania, 1 convict out of every 6 has been recommitted, and in the state of Maryland the commitments are as numerous as 1 in 7, the proportion of relapsed criminals in the cells at Auburn is not greater than 1 in 19.

(Stuart's *Three Years in North America*; Hall's *Travels in North America*; *Report made to the French Government* by MM. De Beaumont and De Toqueville *on the Penitentiary System of the United States*.)

AUBUSSO'N, a town in France, in the department of Creuse, about twenty-three miles S.E. from Guéret, the capital of the department. It is situated on the River Creuse, and in the midst of a sterile district abounding with granite mountains. The town consists of a single street, broad and well built. The manufacture of carpets is the great support of Aubusson. Those made in the royal manufactory are equal to the carpets of Paris; and there are many other manufactories of the same article. Thread is also made here. This place is the capital of an arrondissement: it has a theatre, an agricultural society, and a nursery-ground for the department. The population is upwards of 4000.

The arrondissement of Aubusson contains 860 square miles, or 550,400 acres, and has a population of 93,298 inhabitants. (Malte-Brun; Balbi; *Dict. Universel de la France*.)

AUBUSSO'N, PIERRE D', was born in 1423 of a noble French family, descended from the old Viscounts of La Marche. He served while yet very young in the imperial army in Hungary against the Turks, and from that time the prevailing idea of his mind seems to have been that of fighting the Mussulmans, who then threatened to overpower Christian Europe. D'Aubusson, having returned to France, was presented at court by his cousin Jean d'Aubusson, chamberlain of Charles VII., and became a favourite of the Dauphin, afterwards Louis XI., whom he accompanied in his expedition to Switzerland in 1444, and was present at the battle of St. Jacob, near Basle. After some years he proceeded to Rhodes, when he entered the order of St. John of Jerusalem. He obtained a commandery, and was dispatched by the Grand Master with a mission to France, in which he obtained of the King subsidies of money to assist Rhodes, which was then threatened by Mahomet II. He was afterwards made Grand Prior, and was intrusted with the care of the fortifications of Rhodes. In 1476, on the death of the Grand Master Orsini, D'Aubusson was elected to succeed him. In May, 1480, a large Turkish army, said to be 100,000 strong, commanded by a Greek renegado of the family of Palæologi, landed on the island, and soon after invested the town. The greatest bravery was displayed on both sides. The Turks made the first assault on the 9th of June, but were repulsed. Palæologus then renewed the cannonade with increased vigour, until he had levelled the greater part of the fortifications to the ground. The Turks made a general assault on the 27th of July. In their furious onset they swept away the defenders on the principal breach. Seven Turkish standards were already planted on the rampart, and the Turks were pouring into the town, when D'Aubusson, attended by a chosen band of French knights, rushed to the spot, and after a desperate contest, in which he received five wounds, the Turks were driven out of the breach, and were pursued by the knights and the Rhodians towards their camp. Being panic-struck, the invaders withdrew to their vessels in spite of the remonstrances of Palæologus, and they soon after sailed away from the island. This, which was the first siege of Rhodes, lasted eighty-nine days; the Turks lost 9000 killed, and carried away, it is said, 15,000 wounded. Mahomet II. was greatly irritated at the failure of the expedition; he dismissed and banished Palæologus, and was preparing to renew the attack in person, when he died in a small town of Bithynia, in May, 1481. The Turkish succession was disputed between his two sons, Bajazet and Zizim; and the latter being worsted in fight, took refuge at Rhodes, where D'Aubusson received him with great honour, and afterwards sent him for safety to Bourgneuf, a commandery of the Order in France. Bajazet made peace with the Knights, and agreed to pay a yearly sum for his brother's maintenance. Pope Innocent VIII. demanded that Zizim should be intrusted to his guardianship; and D'Aubusson being obliged to comply, though unwillingly, the Turkish prince went to Rome in 1488, where he was treated with all attention. D'Aubusson, in reward for his compliance, was made a Cardinal. About this time a great crusade was projected by the Christian princes against Bajazet, and D'Aubusson was proposed as commander of the expedition; but the ambition of Charles VIII. of France, who looked to the conquest of Naples, the jealousy of the other sovereigns, and the tergiversations of Alexander VI., who had succeeded Innocent on the Papal chair, frustrated the design. Charles VIII., on his passage through Rome in 1495, demanded of the Pope the person of Zizim, which Alexander dared not refuse him at the time. Soon after, however, while Charles was at Naples, Zizim died suddenly at Rome, some say in consequence of irregularities, others from poison given him by order of Alexander VI.; this charge, however, has not been substantiated.

D'Aubusson was deeply grieved at all the scandals of that epoch, and at the wars which Christians waged against Christians, instead of turning their arms against the Mussulmans. He fell into a deep melancholy, and died at Rhodes in July, 1503, aged eighty. He was one of the most illustrious Grand Masters of his Order. There is a narrative in Latin of the siege of Rhodes, which is attributed to D'Aubusson, in the collection *De Scriptoribus Germaniæ*, Frankfort, 1602. Gulielmus Caoursinus has

written also an account of the siege, printed at Ulm, 1496. Father Bouhours has written a life of Pierre D'Aubusson.

AUCH, a city in France, the capital of the department of Gers, 479 miles from Paris, through Orleans, Limoges, and Toulouse; but only 410 through Perigueux and Agen.

Auch is a very antient town, and bears, under a somewhat altered form, the name of the Ausci, a people who inhabited the district round it in the time of Cæsar, and were subdued by his lieutenant, P. Crassus. In the fourth century, it appears in ecclesiastical history as the see of an archbishop, whose successors retained till the first French Revolution the title of *Primate of Aquitaine*. The town is built in the form of an amphitheatre, and presents a very picturesque appearance. The River Gers, a tributary of the Garonne, flows through it, and divides it into two parts, called the Upper and Lower Town; a flight of two hundred steps forms one of the communications between these parts. The streets are narrow and crooked, but well paved. There is a fine *place* (square) at the highest part of the town, terminated on the west by a charming promenade, from which is a view of the Pyrenees. The foundation of the cathedral, which is very antient, has been ascribed to Clovis. It is admired for the elevation of the vaulted roof, and the beauty of the painted windows. A modern portal added to it, in which the Corinthian and Composite orders are united, assorts ill with the Gothic architecture of the building. The palace of the archbishop adjoins the cathedral, and from its terrace commands some fine prospects.

There are in the town a large hospital, a considerable library, a *collège* (or high school), an agricultural society, a drawing academy, and a theatre. A statue has been erected to M. d'Etigny, an individual to whom the town owes much of its embellishment, especially the promenade already mentioned.

The trade of Auch is chiefly in the produce of the neighbouring district—wine, wool, pens, and *bon Chrétien* pears, the excellence of which last is generally admitted. Some manufactures of woollen and cotton stuffs, leather, and hats are carried on. The country round produces a little corn, and some wine and brandy, but is chiefly famous for its fruits. A turquoise mine was worked near this city a few years since. The population in 1826 was nearly 11,000; when Martinière published his *Grand Dictionnaire*, the population was estimated at 3000.

Auch is the seat of an archbishop, whose own diocese consists of the department of Gers. His suffragans are the Bishops of Aire, Tarbes, and Bayonne. Before the revolution he had ten suffragan bishops. It was formerly regarded as the capital of Gascogne, or Gascony.

The arrondissement of Auch contains 540 square miles, or 345,600 acres; and a population of 56,098 inhabitants. (Malte-Brun; *Dict. de la France*, &c.)

AUCHE'NIA, in zoology, a genus of ruminating mammals. [See LAMA.]

AUCHTERARDER, a village in Perthshire, which was once a royal burgh, and enjoyed the elective franchise. It consists of one street, about a mile long, on the road from Perth to Glasgow; and is 54½ miles north-west of Edinburgh. It has five fairs in the year; and the linen manufacture is carried on. There is a seceder's meeting-house. The population of the parish, which is about 5 miles long and as many broad, was, in 1831, 3182. Stone fit for building and a peculiar kind of thin grey slate are quarried. The parish is in the presbytery of Auchterarder and the synod of Perth and Stirling. Auchterarder was burnt by order of the Pretender during the rebellion in 1715-16; and the inhabitants were exposed to the rigour of the cold in the middle of winter. Military reasons were urged in excuse for the barbarity; and when the Pretender fled from Perth he left a sum of money to be distributed among the sufferers.

There are some vestiges of Roman encampments in the parish; also the ruins of an old castle, said to have been a hunting-seat of Malcolm Canmore; and of a chapel, formerly the parish church. Many of the inhabitants of Auchterarder retain burial-places in the grave-yard attached to the last.

The village of Auchterarder is much inconvenienced by the want of water. (Sir John Sinclair's *Statistical Account of Scotland*.)

AUCHTERMUCHTY, a royal burgh in the county of Fife, in Scotland, incorporated by James IV. of Scotland, and governed by three baillies and fifteen councillors. It has no share in parliamentary representation. The population of the parish amounted in 1831 to 3225 persons, who are partly engaged in manufacturing brown linen. There are four fairs in the year, which are numerously attended. Freestone is abundant in the parish. The church was rebuilt, in a substantial manner, in 1780. The parish is in the presbytery of Cupar and Synod of Fife. Auchtermuchty is distant about 9 miles west from Cupar, and 3½ north by west from Falkland.

AUCKLAND, ST. ANDREW, an extensive parochial chapelry in Darlington Ward, in the county of Durham. The name is derived from the Saxon *Ac*, or *Ake* (oak), and the word land; and in old writings is spelled Akeland, Aucland, Aclent, Acclat, and Acle. The parish contains twenty-seven subdivisions; townships, chapelries, &c., of which only one calls for particular notice, viz. Bishop's Auckland. Some others may be here mentioned. Binchester is the site of a Roman station—Vinovium, or Binovium. The station is on elevated ground, nearly eighty feet above the level of the river Wear, which washes the base of the hill on the west. Various Roman antiquities have been discovered here: coins, fragments of pottery, seals, &c. At Thickley was born Colonel John Lilburne, who occupies a conspicuous place in the history of Charles I. Eldon gives the title of Earl to the late Lord Chancellor Eldon.

The parish of St. Andrew Auckland contains 45,470 acres (= 71 square miles), and had, in 1831, a total population of 11,137 inhabitants. The river Wear passes through it, and is crossed by a stately stone bridge, called Newton Capp Bridge, of two elliptical arches, according to some authorities (Hutchinson, *History of Durham*); or of one circular and one pointed arch, according to others (*Beauties of England and Wales*). The height of the bridge above the river, and the span of the arches (91 feet for one arch, and 101 feet for the other), are considerable for the time of its erection, which was about the year 1390.

The church is on the bank of the river Gaunless, a stream which, running through the parish, joins the Wear near Bishop's Auckland. It is in the form of a cross, and has a tower at the western end. It was collegiate in early times, before the time of Antony Beck, or Beke, bishop of Durham, who is commonly reputed to have rendered it collegiate in 1292. The college, as appointed by Bishop Beck, consisted of a dean and an unascertained number of prebendaries or canons. This church, on the dissolution which took place in the 1st of Edw. VI. A.D. 1547, was greatly reduced, being left neither as a rectory nor vicarage, but as a curacy only, which it continues still to be. It is in the archdeaconry and diocese of Durham, and the bishop is the patron. (Hutchinson's *Hist. of the County of Durham*; *Beauties of England and Wales*.)

AUCKLAND, BISHOP'S, a market-town and township in the parochial chapelry of St. Andrew Auckland, 248½ miles N.N.W. from London, and 10 miles S.W. from Durham.

It is situated on an eminence, bounded on the north by the river Wear, and on the east by the little stream, the Gaunless, which falls into the Wear near the town. It is on the old Roman road, Watling-street. The eminence on which it is built is nearly 140 feet above the level of the plain below, and the descent is occupied chiefly by gardens, which, from their steep declivity, may be termed hanging gardens. The town is well built, and there is a spacious square market-place. A grammar-school was founded here by King James I. in the second year of his reign, at the petition of Dame Anne Swyfte of the city of Durham, by whom the school was endowed with an income of 10*l.* annually. The school seems to have been further endowed by Bishop Neile; and it appears also that the old chapel was appropriated to its use by Bishop Morton. The former of these prelates held the see of Durham from 1617 to 1627, and the latter from 1632 till the dissolution of the see in the time of the Commonwealth. In the course of the last century the chapel was rebuilt by subscription, and divine service restored. The school is now taught in apartments on the ground-floor. There is a school for 20 boys, founded by a Mr. Walton; also one on Dr. Bell's system, for 200 boys; and a school of industry for girls. The last two

institutions seem to owe their origin chiefly to the liberality of the late bishop, Shute Barrington. There is an almshouse, founded by Bishop Cosins, who came to the see on the restoration of Charles II. The market is on Thursday. Two antient fairs, on Ascension Day and Corpus Christi Day, have been given up · but fairs of recent origin are, according to some accounts, held in the months of March and October. Some muslins and other cotton goods are made here.

The town derives its designation of Bishop's Auckland from the residence of the bishops of Durham. It is said to have been chosen as an episcopal residence by Bishop Antony Beck, mentioned in the preceding article, who is also said to have built a castle here in a very magnificent style; but there are no remains of it left. The present palace, which has lost all the appearance of a castle, and is an irregular pile rather resembling a magnificent abbey, lies at the N.E. end of the town. The entrance to it from the town is through a new Gothic gateway and screen, extending 310 feet. The palace-chapel, which was built by Bishop Cosins, is a very fine edifice, with lofty piers and arches of the early English character. It is 84 feet in length and 48 broad. This chapel has been repaired at various times. The windows of the aisles are in the decorated style; and the east window is very fine. The altar-piece is a painting of the resurrection, by Sir Joshua Reynolds. Bishop Cosins lies buried under the floor. A plain stone, with a modest epitaph, points out the spot. There is a handsome monument, by Nollekens, to the memory of Bishop Trevor, who died in 1771. The palace contains some good paintings: among them are full-length paintings, by Ribera (otherwise Spagnoletto), of Jacob and the twelve patriarchs, and a picture of the Cornaro family, by Titian. There is also a portrait of Tycho Brahé, the Danish astronomer. The park (through which the Gaunless flows) is very extensive, including 800 acres, and the part near the house is laid out so as to command a great variety of prospect. A stone bridge crosses the Gaunless.

The episcopal palace was granted, on the overthrow of Charles I. and his party, and the suppression of the see, to Sir Arthur Hazelrig, who determined to make it his residence. He pulled down almost all the buildings which he found there, and out of their ruins erected a magnificent house. On the restoration of Charles II. the bishops came again into possession; but Bishop Cosins declined to occupy the house built by Sir Arthur, on the ground that he had used in building it the stone of the antient chapel. He accordingly pulled it down, and restoring the stone to its original destination, built the present chapel.

(Hutchinson's *Hist. of the County of Durham*; *Beauties of England and Wales*, &c.)

AUCTION, a method employed for the sale of various descriptions of property. This practice originated with the Romans, who gave it the descriptive name of *auctio*, an increase, because the property was sold to him who would offer most for it. In more modern times, a different method of sale has been sometimes adopted, to which the name of auction is equally, although not so correctly, applied. This latter method, which is called a Dutch auction, thus indicating the local origin of the practice, consists in the public offer of property at a price beyond its value, and then gradually lowering or diminishing that price until some one among the company consents to become the purchaser.

The first-described mode of sale by auction was established by the Romans for the disposal of military spoils, and was conducted *sub hastâ*, that is under a spear, which was stuck into the ground upon the occasion. This expression was continued, and sales were declared to be conducted *sub hastâ* long after the spear was dispensed with. In the same manner, a company is in the present day invited to a 'sale by the candle' or 'by the inch of candle,' with as little regard to actual practice. The origin of this expression arose from the employment of candles as the means of measuring time, it being declared that no one lot of goods should continue to be offered to the biddings of the company for a longer time than would suffice for the burning of one inch of candle; as soon as this rude kind of measure had wasted to that extent, the then highest bidder was declared to be the purchaser.

It is a common rule in law that no contract is binding without the assent of both parties. In sales by auction, the assent of the buyer is given by means of his bidding, while the assent of the seller is signified by the fall of a hammer; and until this declaration has been made, the intending purchaser is at liberty to withdraw his bidding.

It is a common practice for the owner of property offered for sale by auction to reserve to himself the privilege of bidding, and, as it is termed, buying in his goods, if the price offered by others should not suit his convenience. This practice was held by the civil law to be illegal, and even to partake of the nature of a fraud; and so lately as the time of Lord Mansfield, private biddings at auctions were so considered. In the present day, however, they are not only allowed by the law, but the legislature has so far recognized the propriety of the practice, that in cases where the property has been bought in either by the proprietor or by his declared agent, who is in general the auctioneer, no auction duty is chargeable.

It has been laid down, that the buyer of goods at an auction cannot be held to the performance of his contract, in cases where he was the only *bonâ fide* bidder at the sale, and where *public* notice was not given of the intention of the owner of the goods to bid, even though his agent was authorized to bid only to a certain sum. This rule is intended to act as a protection to the public against the practice commonly resorted to by disreputable auctioneers, of employing persons to make mock biddings with the view of raising the price by their apparent competition: the persons thus employed are aptly called *puffers*. In many large towns, and more especially in London, many persons make a trade of holding auctions of inferior and ill-made goods; persons called *barkers* are generally placed by them at the door inviting strangers to enter, and puffers are always employed, who bid more for the articles than they are worth, and thus entice the unwary. Many ineffectual attempts have been made to put a stop to these practices.

The auctioneer is considered the agent of *both* parties, vendors and purchasers. In the language of the judges in a late case, 'a bidder, by his silence when the hammer falls, confers an authority on the auctioneer to execute the contract on his behalf.' He can therefore bind the parties by his signature according to the requisition of the Statute of Frauds, which renders it necessary in contracts of sale of 'lands or any interest in or concerning them,' and of goods above the value of 10*l.*, that some 'note or memorandum should be signed by the parties or their agents lawfully authorized.' And such signature is *now* held sufficient even in an action brought by the auctioneer against the vendor in his own name. It has been doubted therefore, whether a bidder may not retract (in cases within the statute) at any time before the actual written entry. The auctioneer also stands in the situation of a stakeholder of the deposited part of the purchase-money, which he is not at liberty to part with till the sale has been carried into effect; and he cannot, at least after notice, discharge himself by paying over the amount to the vendor. From this peculiarity of his position it results that he is now (as settled by a very late decision) not held liable for any interest on, or advantage which he may make from, the money in his hands. In this respect his situation differs from that of a mere agent, and also from that of one of the contracting parties (the vendor), from whom 'interest is recoverable in the nature of damages for a breach of the original contract on the part of the vendor, by whose failure to make a good title the vendee has for a time lost the use of his money.'—(Mr. Justice James Parke.) An auctioneer (like any other agent and trustee concerned in the sale of property) is forbidden to buy on his own account. And where he sells without disclosing the name of his principal, an action will lie against himself for damages on the breach of contract.

The conditions of sale constitute the terms of the bargain, and purchasers are bound to take notice of them. The late Lord Ellenborough said, that 'a little more fairness on the part of auctioneers in framing particulars would avoid many inconveniences. There is always either a suppression of the fair description of the premises, or something stated which does not belong to them; and in favour of justice, considering how little knowledge the parties have of the thing sold, much more particularity and fairness might be expected.' The conditions usually contain a provision that 'any error or mis-statement shall not vitiate the sale, but that an allowance shall be made for it in the purchase-money.' But this clause is held only to guard against

unintentional errors, and not to compel a purchaser to complete the contract if he has been designedly misled.

The duties levied upon goods sold by public auction are not charged according to any uniform scale. Sheep's wool of British growth sold for the benefit of the growers, or of persons who have purchased directly from the growers, is subject to an auction-duty of twopence for every twenty shillings of the purchase-money Freehold, copyhold, or leasehold estates, whether in land or buildings, shares in the joint stock of corporate or chartered companies, reversionary interest in any of the public funds, and ships or vessels,—are liable to pay sevenpence for every twenty shillings: household furniture, pictures, books, and the like kinds of personal property, are made to pay one shilling for every twenty shillings of the purchase money Many exceptions have been made by the legislature when imposing these duties. 'Piece goods, wove or fabricated in this kingdom, which shall be sold entire in the piece or quantity, as taken from the loom, and in lots of the price of twenty pounds and upwards, are exempted from the payment of duty

The produce of the whale and seal fisheries enjoys an equal exemption, as well as elephants teeth, palm oil drugs, and other articles for the use of dyers also mahogany and other woods used by cabinet makers and all goods imported by way of merchandise from any British colony in America, the same being of the growth produce or manufacture of such colony, and sold by the original importer within twelve months from the time of importation Neither is any duty chargeable upon property sold by order of the courts of Chancery or Exchequer nor on any sale made by the East India or Hudson's Bay Company nor by order of the Commissioners of Customs, Excise or other government boards of commissioners In like manner, sales made by the sheriff for the benefit of creditors in execution of judgment and bankrupts effects sold by assignees are not held liable to the payment of auction duty which last species of exemptions are made upon the principle of not aggravating their losses to innocent sufferers For the same reason goods damaged by fire or wrecked or stranded which are sold for the benefit of insurers, are not charged with duty Wood, coppice, the produce of mines or quarries cattle, corn stock or produce of land, may be sold by auction free of duty while they continue on the lands producing the same

In case the sale of an estate be declared void, through defect of title the duty that has been paid may be claimed again within three months after the time when the defect has been discovered.

The value of goods subject to duty which have been sold by auction, and the net revenue derived from the same in each of the last ten years, are as follow

Year	Amount of goods sold	Revenue
1824	£ 9,205,611	£ 304,021
1825	10,118,571	328,833
1826	7,193,855	217,555
1827	8,11[illegible],278	271,579
1828	7,[illegible]71,244	275,563
1829	7,226,976	251,562
1830	6,398,159	234,8[illegible]4
1831	6,326,481	218,084
1832	6,523,753	227,236
1833	6,857,396	210,61[illegible]

AUCTIONEER, a person whose profession or business it is to conduct sales by auction It is his duty, previously to the commencement of every sale, to state the conditions under which the property is offered, to receive and to notify the respective biddings, and to declare the termination of the sale: for this purpose, he commonly makes use of a hammer, upon the falling of which the biddings are closed.

The law holds that an auctioneer is authorized by the highest bidder or purchaser to sign for him the contract of sale, and that his writing down in his book the name of such purchaser, shall be sufficient to bind the latter to the purchase, provided no objection be made by him previous to such entry. The law also recognises the right of an auctioneer to act as the agent of persons wishing to purchase, who may intrust him to make biddings for them The auctioneer thus being the agent of both parties, his signature of the buyer's name in the catalogue to which the conditions of sale are annexed, opposite to the lot purchased, together with the price bid, has been considered a sufficient note or memorandum in writing of the bargain within the Statute of Frauds, but where the conditions of sale are not annexed to the catalogue, nor expressly referred to by it, the signature of the buyer's name in the catalogue is not a compliance with the statute.

Every person acting as an auctioneer in the United Kingdom is required to take out a license, which must be renewed on the 5th of July in every year, and for this license the charge of five pounds is annually made He must also enter into a bond with sufficient sureties to deliver to the officers of excise, within a certain period, a true and particular account of every sale held by him, and to pay the amount of auction-duty accruing thereon For this purpose, twenty eight days are allowed, within the limits of the chief office of excise in London, and six weeks beyond those limits

An auctioneer intending to hold a sale within the limits of the chief office of excise in London must give two days notice thereof at the said office If the sale is to be held beyond those limits, three days notice must be given to the collector of excise, at the nearest excise-office This notice must be in writing, and signed by the auctioneer, and must specify the particular day when such sale is to be held It is further obligatory upon him to deliver in a written or printed catalogue likewise attested by his signature, or by that of his authorized clerk, enumerating every lot and article intended to be offered at such auction He is liable by law for the amount of the auction duty, but may recover the same from the vendor It is very common to stipulate that the buyer shall pay the amount of duty in addition to the sums bid by him

If an auctioneer declines or omits at the time of sale to disclose the name of his employer, he makes himself responsible toward the buyers for all matters in regard to which the responsibility would otherwise lie with the owner of the property sold He is also responsible to his employer for any loss or damage that may be sustained through his carelessness or want of attention to the instructions given and if by his gross negligence the sale becomes nugatory he can recover no remuneration for his services from his employer If he receives money as a deposit on the sale of an estate and knowing that there is a defect in the title pays that deposit over to his employer, he is answerable for the amount to the purchaser and if he pays over the produce of a sale to his employer after receiving notice that the goods of right belong to another, the real owner may recover the value from the auctioneer

The number of auctioneers licenses issued in England during each of the last ten years was as follows – 1824, 2939 1825, 2941 1826, 2[illegible]10 1827, 2981 1828, 3119, 1829, 2972, 1830, 3013 1831, 2971, 1832, 3002, 1833 3010

AUCUBA the Japanese name of a diœcious plant, now commonly cultivated in the gardens of this country as a hardy evergreen shrub remarkable for its shining pale green leaves mottled with yellow It is described by Thunberg as growing to the height of a man or higher and is common in various places in Japan, both wild and cultivated Its fruit, which it bears in March, is a red berry, about the size of that of a laurel, and containing a single stone, with a bitter nauseous kernel In this country we have only the female state of this plant, the natural order of which is still unsettled Several opinions upon that subject have been advanced by botanists but Professor Decandolle seems most correct in referring it to the dogwood tribe (*Corneæ*), to which its strong smell of elder seems to point out its affinity

It is said that only one species exists, namely, the *Aucuba Japonica* of our gardens, but it seems not improbable, from Thunberg's figure, that the plant represented at his tab 1 with loose hairy panicles of flower may be a second species We possess only a variegated variety of the plant in its natural state it is said to have brownish green leaves without any blotches

AUDE, a river in the south of France, which rises in the Pyrenees, and falls into the Mediterranean Sea Its source is in the department of Pyrénées Orientales (Eastern Pyrenees), a few miles N W of the town of Mont Louis Its course is winding, though the general direction of it is from S to N, past the towns of Quillan, Alet, and Limoux, till it reaches Carcassonne From Carcassonne its course, though still winding, is for the most part towards the E., until it

empties itself into the sea near the Etang de Vendres, to the E. of Narbonne, running nearly parallel with the great canal of Languedoc. Its whole course is from 130 to 140 miles.

The waters of the Aude are very turbid; and the deposits at its mouth have caused a considerable variation in the line of the coast. It had formerly two branches by which it flowed into the sea; but the canal Robine d'Aude, or Robine de Narbonne, has taken the place of one of these. This passes between the Etangs of Sigean and Gruissan, and then through the Etang de Sigean to the sea. Boats are very seldom seen on this river, except quite in the lower part of its course. It has no tributary of any consequence; the Orbieu, the principal, which falls into it on the right bank above twenty miles from its mouth, is forty to forty-five miles in length. The basin of the Aude is inclosed by Mont Espinouse and the Black Mountains, which are part of the chain of the Cevennes, and by the eastern extremity of the Pyrenees. (Malte-Brun; *Encyclopédie Methodique*, &c.)

The Aude was known to the Romans by the name of Atax. They gave this name to the channel which passes by Narbonne to the sea. That part of this channel which passes through the Etang de Sigean was deepened, and faced and paved with stone, by the Romans.

AUDE, a department in France, taking its name from the river Aude, which flows through it. It is bounded on the N. by the departments of Herault and Tarn, on the N.W. by that of Haute Garonne (Upper Garonne), on the W. and S.W. by that of Arriège, and on the S. by that of Pyrénées Orientales. The east side is washed by the Mediterranean Sea. Its greatest length is in a direction nearly E. and W., and is about seventy-six miles; and its greatest breadth is about fifty-seven miles. The superficial content is about 2437 square miles; and the population 266,000, giving about 109 inhabitants to every square mile.

This department consists of the basin of the Aude, and the slopes of the mountains by which it is bounded. The N. and S. are consequently the parts of greatest elevation; the former from the commencement of the Black Mountains, and the latter from the rise of the Pyrenees. The centre is traversed by the Aude, whose course has been already described; and also by the canal of Languedoc, which, entering the department on the N.W., proceeds in a direction about E. by S., till it almost joins the Aude near Carcassone, and then runs parallel to the course of the river for many miles, until, again turning a little to the north of E., the canal quits this department for that of Herault, and the river pursues its course towards the sea.

The mountainous districts are dry and unfruitful, yet the agricultural produce of the department is more than sufficient for the wants of the inhabitants. The vine is cultivated to a considerable extent; the figs are excellent; and an herb, called *sallicou* or *salicot*, which grows here, is gathered, dried, and sent to other departments, or to Italy, to be used in the manufacture of glass. Honey, known by the designation of 'Narbonne honey,' forms an article of considerable commercial importance. The mineral wealth of the department is not great; though silver, copper, lead, and iron are procured, as well as marble in great variety, gypsum, and some coal; and there are salt-works near the Etang (or Pool) of Sigean, one of the lagoons which line the French part of the Mediterranean coast. At Bize is a cavern, in which human bones are said to have been found along with those of the stag, camel, roebuck, antelope, and bear.

The inhabitants carry on considerable manufactures, which are promoted by the advantage of inland navigation through the canal of Languedoc. Woollen cloth may be regarded as the staple manufacture. It is carried on at Carcassonne and Castelnaudary, both of which towns are on the canal, and at Limoux. Wax, oil, brandy, leather, and glass, are among the productions of the industry of this department. The iron-works also are of some importance. The little town of St. Colomb sur l'Hers (with a population of about 1000) is noted for its turnery and toys.

The principal towns are Carcassonne, the capital of the department (population 18,000), Castelnaudary, and Narbonne (population of each 10,000), and Limoux (population 7000). These are all chief places of arrondissemens. Alet, on the Aude, celebrated for its medicinal waters, has 1109 inhabitants. (See CARCASSONNE, CASTELNAUDARY, LIMOUX, and NARBONNE.)

This department, which coincides with part of the province of Languedoc, is under the jurisdiction of the Cour Royale (Assize Court) of Montpellier. It sends four deputies to the Chamber. It forms the diocese of Carcassonne, the bishop of which is a suffragan of the Archbishop of Toulouse and Narbonne. (Malte-Brun; Balbi; *Dictionnaire Universel de la France*.)

AUDEBERT, JEAN BAPTISTE, was born in 1759, at Rochefort, in France. His father was a dealer in provisions for the supply of the shipping. Young Audebert, when seventeen years of age, went to Paris to study the arts of design and painting. He soon excelled as a miniature-painter, and supported himself honourably by his labours in this way. Fortunately, in 1789, M. Gigot d'Orcy, receiver-general of taxes, who was distinguished by his taste for natural history, to the promotion of which he gave the most munificent encouragement and assistance, having had an opportunity of judging of the talents of Audebert, employed him to paint the most rare objects in his magnificent collection, and afterwards sent him to England and Holland, whence he brought back a great many drawings, which were used in Olivier's *Histoire des Insectes*. These occupations gave a bias to Audebert in favour of natural history, which soon amounted to an ardent passion. No longer content to give expression to the ideas of others, he undertook various important works. The first of these was *Histoire Naturelle des Singes, des Makis, et des Galeopithèques*, one vol. large folio, with sixty-two plates, the figures coloured, Paris, 1800. The appearance of this work caused a great sensation among naturalists, for Audebert united in his own person the characters of painter, engraver, and author. Having carefully investigated the different modes of engraving, and the trials which had previously been made to colour the engravings of objects of natural history, he improved upon these so much, that he may be said to have invented a new mode, and to have carried it to the highest degree of perfection. This improvement consisted in putting all the colours on one plate at once, instead of using as many plates as there were colours: he made a further improvement by using oil instead of water colours. He also succeeded in printing with gold, the colours of which he varied in such a manner as to imitate the most brilliant hues of the originals. In his *Histoire des Colibris, des Oiseaux-Mouches, des Jacamars, et des Promerops*, 1 vol. large folio, Paris, the expression and position of the birds are so perfect as to make them appear animated; and the descriptions, of which he is likewise the writer, are worthy of such a work. Two hundred copies only were printed in folio, in which the name at the foot of each figure is printed in gold; one hundred copies in large quarto; and only fifteen copies in folio, of which the whole text is printed in gold.

Scarcely were these works commenced before Audebert began to plan others—the history of *Birds*, of the *Mammiferæ*, and lastly that of *Man*. He had thus chalked out for himself work enough to occupy a long life; but in 1800 death carried him off in the forty-second year of his age. At the time that death interrupted his career, he had begun the *Histoire des Grimpereaux et des Oiseaux de Paradis*, &c., 1 vol. The publisher, M. Desray, who was in possession of his materials and the processes which he had discovered and employed, completed these two works in as perfect a manner as those which had been finished by the author himself. The text was edited by M. Vieillot, a naturalist, and friend of Audebert. These two works are united under the common title of *Oiseaux Dorés ou à reflets métalliques*, 2 vols. in large folio and large quarto, Paris, 1802. Upon the same plan, and by the adoption of the same processes, M. Vieillot has published *l'Histoire des Oiseaux de l'Amérique Septentrionale*. The Birds of Africa (*Les Oiseaux d'Afrique*) of Le Vaillant are indebted for their excellence to Audebert, who superintended the printing of the plates as far as the 13th part. Other branches of natural history, and especially botany, were enriched by the discoveries of Audebert, as may be seen in the splendid works *Le Jardin de Malmaison*, by Ventenat, and the *Liliacées* of Redouté.

Audebert was not more remarkable for his talents than beloved for his amiable manners and generosity of disposition. Though naturally tranquil and of a reflecting character, he had much gaiety of mind, was fond of literature, and even wrote comedies. We are not aware that any of these have been published, but his other works will always ensure him a high and lasting place among the promoters of the science of natural history. (*Biog. Universelle.*)

AUDIANS. [See HERETICS.]

AUDITOR, an officer or agent of the king, or of a private individual or corporation, who examines periodically the accounts of under-officers, tenants, stewards, or bailiffs, and reports the state of their accounts to his principal.

Auditors of the Imprest.—Ancient officers of the exchequer, abolished in 1785.

Auditors of Public Accounts, or, more strictly, 'Commissioners for auditing the Public Accounts,' are public officers originally established by the 25 Geo. III. c. 52, in place of the patentees of the office of *auditors of the imprest* (Lord Sondes and Lord Cardiff), whose patents were vacated with compensation by that act, and their functions and powers transferred to the commissioners above-mentioned. The King is authorised by the stat. 46 Geo. III. c. 141, to appoint ten of these commissioners, who hold their offices during good behaviour, with salaries of 1500*l.* per annum to the chairman, and 1200*l.* per annum to the other commissioners. They are incapacitated from sitting in parliament, and are sworn to execute the duties of their office faithfully and impartially. There is a provision in the statute, that no vacancy which may arise by death or otherwise in the number of commissioners after the first appointment shall be filled up without the express authority of parliament, until the number is reduced to five, in which case the King may, from time to time, appoint new commissioners, so as to keep their numbers always to six. Two of the number are, by the 1 & 2 Geo. IV. c. 121, sec. 17, empowered to examine parties on oath, and do all acts concerning the audit of public accounts.

By the 46 Geo. III. c. 141, sec. 8, all public accountants are to transmit to the commissioners within three months after 31st December, or within three months of such day as the lords of the treasury shall order (see 2 & 3 Will. IV. c. 104), accounts duly attested, in manner pointed out by the act, of all sums received and paid by them for the public service within the preceding year, together with proper vouchers for such receipts and payments, and a schedule of the same; which schedule is to be compared with the vouchers by an officer in the audit office. The commissioners may call on all public accountants, whenever they think fit, to account to them for the receipt, expenditure, or issue of all monies or stores entrusted to them, and on failure they are to certify the defaulters' names to the remembrancer of the exchequer, and the attorney-general of England or Ireland, and lord-advocate of Scotland, in order that proceedings may be taken to compel them to account, unless, on the defaulter's application, the lords of the treasury think it proper to stay the proceedings for a reasonable time. By the stat. 1 & 2 Geo. IV. c. 121, it is enacted, that at the four quarter-days, the 5th day of January, 5th day of April, 5th day of July, and the 10th day of October, general imprest certificates shall be made out at the exchequer, specifying all monies and exchequer bills issued at the receipt of the exchequer within the preceding quarter, and these certificates are transmitted to the commissioners of audit within thirty days after each quarter day; and by the 10th section of the 46 Geo. III. c. 141, the paymaster of the forces, the treasurers of the navy and ordnance, and all other public officers, who issue to any persons money for public services by way of imprest or on account, are required within three months after the 31st December in every year (or at shorter periods if ordered by the lords of the treasury, see 1 & 2 Geo. IV. c. 121, sec 6.) to transmit to the commissioners of audit a certificate of such monies, with the names of the persons to whom paid, and the commissioners are forthwith to take them into consideration. By the above-mentioned statute, 1 & 2 Geo. IV. c. 121, various regulations have been made respecting the mode of conducting the business of the commissioners of audit, by which the antient and inconvenient system of keeping the public accounts has been superseded. The whole of the arrangements in the Audit Office are now subjected to the control of the lords of the treasury, who are authorized to make such orders and regulations for conducting the business of the office as they may think expedient, and best calculated to ensure the efficient discharge of the duties of the commissioners and other officers. By the 2 Will. IV. c. 26, the above commissioners are authorized to audit the accounts of receipt and expenditure of the colonial revenues; and the 2 and 3 Will. IV. c. 99, transfers the powers and functions of the commissioners of public accounts in Ireland to the commissioners for auditing the public accounts of Great Britain.

AUDRAN, GERARD. This eminent engraver was born at Lyons, A.D. 1640. He learned the principles of design and engraving from his father, who was also an artist. At an early age he went to Paris, where his talents soon obtained notice, and procured him eventually the patronage of Le Brun, the king's painter, who employed him to engrave the Battle of Constantine, and the Triumph of that emperor. He went subsequently to Rome, where he resided three years, and improved himself in design in the school of Carlo Maratti. Among many fine plates which he executed at this period, a portrait of Pope Clement IX. excited particular admiration; and M. Colbert, a great patron of the arts, conceived so high an opinion of Audran's talents, that he persuaded Louis XIV. to recall him to France. On his return he was appointed engraver to the king, and in the year 1681 was nominated councillor of the Royal Academy. He died at Paris, A.D. 1703, aged sixty-three.

Gerard Audran was unquestionably one of the greatest historical engravers that has ever existed. By some judges, and those not inadequate ones, the very first place has been assigned to him. His reputation perhaps rests chiefly on the celebrated series of plates after Le Brun's Battles of Alexander, respecting which the painter himself confessed that his expectations had been surpassed. It is indeed impossible to contemplate, without the highest admiration, the skill, intelligence, and extraordinary facility exhibited by his burin throughout those immense and intricate compositions. Although completely a master of the mechanical execution of his art, he attached little importance to that clear and methodical arrangement of lines which forms the chief point of ambition with many other engravers. His style is composed of a bold mixture of free hatchings and dots, placed together apparently without order, but rendering, with admirable effect, not merely the contours, but the mind and feeling of the painter; and his style is so entirely free from *manner*, that, on looking at his prints, we lose sight of the engraver, and are reminded only of the master whom he is transcribing. To feel the truth of this remark, it is only necessary to glance at the above-mentioned Battles of Alexander, after Le Brun: the Preservation of the young Pyrrhus, after Nicholas Poussin; the Plague, after Mignard; and the Martyrdom of St. Laurence, after Le Sueur; in which works the respective style of each painter is rendered with the most distinct yet delicate discrimination. Gerard Audran owed his extraordinary excellence not only to his consummate skill in design, but in a great measure to his frequent habit of painting from nature; and several subjects which he engraved from his own designs attest the extent and versatility of his powers.

The works of Gerard Audran may be classified under four heads, exclusive of his portraits:

1. His slight prints or etchings, to which little or nothing was done with the graver. Among these may be enumerated—the Deluge, from Le Fage; the Passage through the Red Sea, from the same; the Combat of Joshua against the Amalekites, from the same; the Empire of Flora, from Poussin; the Preservation of Pyrrhus, from the same; a Ceiling, from Le Brun, representing the Seasons, in five plates, and dedicated to Louis XIV.

2. Those which are more finished, but in a rough, bold manner. For example: Paul and Barnabas at Lystra, from the tapestries in the Vatican, after Raffaelle; Coriolanus appeased by his Family, from Poussin; Time supporting Truth, from the same; the ceiling of the Chapel de Saulx, representing the accomplishment of the old law by the new one, engraved in 1681, from Le Brun, on six large plates which join together—a work distinguished by great spirit, character, expression, and beautiful drawing; the Death of St. Francis, from Annibale Caracci.

3. Those in his most finished manner, as the Battles of Alexander, from Le Brun: namely, the Passage of the Granicus; the Battle of Arbela; Porus brought to Alexander. To this set are added two more large prints, as follow:—Alexander entering the Tent of Darius, and the Triumphal Entry of Alexander into Babylon: those impressions are most esteemed which have the name of Goyton, printer, marked on them. The Plague, from Peter Mignard; the Baptism of the Pharisees, from N. Poussin; the Martyrdom of St. Laurence, from Eustace le Sueur; the Martyrdom of St. Agnes, from Domenichino.

4. Such as he did with the graver only: these are few, and perhaps unequal in merit to the preceding. We need only mention Æneas saving his father Anchises from the

plunder of Troy, after Dominichino; a small folio frontispiece to the effigies of the popes and cardinals, published at Rome, from Ciro Ferri.

A few only of his works are here enumerated. This catalogue is from Strutt's *Biog. Dict. of Engravers.*

AUERSTADT, a village of about 500 inhabitants, in the Prussian circle of Merseburg (about eight leagues to the north-east of Erfurt), which owes its celebrity to the defeat of the main body of the Prussian army by a division of the French army under Marshal Davoust, on the 14th of October, 1806. For this brilliant achievement Davoust received the title of Duke of Auerstädt from Napoleon. On the same day Napoleon defeated Prince Hohenlohe at Jena; the two battles have usually gone under the name of the 'Battle of Jena,' as part of the same field, though they were quite distinct, and indeed some leagues from each other.

AUGE'R, ATHANA'SE, was born at Paris in 1734. Having entered the clerical profession, and taken orders, he applied himself indefatigably to the study of the Greek and Roman writers, especially the orators. He was appointed professor of rhetoric in the college of Rouen. The bishop of Lescar having become acquainted with him, made him his grand vicar, and used to call him jestingly his vicar *in partibus Atheniensium*, alluding to his Greek erudition, and his passion for that language. Auger's first publication was a translation of Demosthenes and Æschines, 5 vols. 8vo. 1777. This was the first French translation of all the works of those two great orators, and Auger enriched it with treatises on the judiciary system and the laws of the Athenians, and on the constitution of their republic. He now settled at Paris, where he lived in modest seclusion upon a small income, entirely devoted to his favourite studies. After the publication of his translation he was elected a member of the Academy of Inscriptions. His next works were a translation of Isocrates, 3 vols. 8vo., 1783, and one of Lysias, 8vo., same year. He applied with equal zeal to the study of the great Roman orator, and translated the whole of his *Orations*, of which he published selections. He wrote at the same time a work on the constitution of Rome: *De la Constitution de Rome sous les Rois, et au tems de la République*, which was published after his death as an introduction to the whole of Cicero's *Orations*, 10 vols. 8vo. 1792-4. The essay on the Roman constitution fills the first volume, and as an abridgment it may even now be consulted with profit, although it has been in some measure superseded by Niebuhr's more elaborate and more profound work on the history of Rome. Auger's object was to develope the system and the working of the Roman political institutions in their three essential parts—the legislative, the executive, and the judiciary. The second volume is a continuation of the first, being engrossed by a life of Cicero, chiefly relating to his public character, and his connexion with the state and vicissitudes of the Roman republic at the epoch preceding its fall. The study of Cicero and of Roman history occupied, in great measure, the last thirty years of Auger's life. He however published, in the mean time, selections from the works of the two Greek fathers, Chrysostom and Basil: *Homelies, Discours, et Lettres choisies de St. Jean Chrysostome*, 4 vols. 8vo. 1785; and *Homelies et Lettres choisies de St. Basile le Grand*, 8vo. 1788.

The first symptoms of the French revolution found Auger deeply engaged in his meditations on the Greek and Roman republics. He felt naturally favourable to the general principles of constitutional liberty which were then promulgated in France, and he wrote several pamphlets in favour of them. One subject, which more than others seemed to have attracted his attention at the time, was that of a new system of public education. In his *Projet d'Education Publique, précédé de quelques Reflexions sur l'Assemblée Nationale*, 8vo. 1789, he traced the outlines of two distinct plans: one for learned or classical education, and another for the education of those who, not being able or not wishing to study Latin and Greek, might yet be desirous of being instructed in the literature of their own country, and of studying rhetoric, philosophy, and jurisprudence, in their native language. In a subsequent little work, *Catechisme du Citoyen Français*, 16mo. 1791, he reverted to the subject of education, observing that his former plan being intended for the higher and the middle classes, there still remained a much more numerous class, including the humbler ranks of the towns' people and the rural population, for whom he had sketched out the present catechism. 'It may have been deemed advantageous,' he observes, 'under the former system of government, to keep this vast multitude in ignorance, but such a state of ignorance becomes dangerous now. This class, with the knowledge of its strength, ought also to acquire the knowledge of how to use that strength without abusing it—it ought to be told its duties as well as its rights—it ought to become instructed, orderly, and moral.' In his catechism he clearly defines the rights and the duties of individuals under a system of well-understood liberty; and he draws the line between liberty and the abuse of it—between equality before the law, and social inequality, which is inherent in the nature of men. That line, however, was soon after obliterated, and the consequences were fatal to France and to Europe; but the good Auger was spared the grief of seeing the catastrophe: he died in February, 1792, regretted by all who knew him. Herault de Sechelles, who afterwards figured as a member of the Convention, and who had studied Greek under Auger, composed his funeral eulogy. Auger was a man of great learning, with the simplicity of a child. His last work, a treatise on Greek tragedy, was published a few days after his death.

AUGEREAU, PIERRE FRANCOIS CHARLES, Duke of Castiglione and Marshal of France, was born of humble parents (his father was said to be a fruiterer) in Paris on the 11th of November, 1757. He first enlisted in the French carabineers, and from thence entered the Neapolitan service. He obtained his discharge in 1787, but continued to reside at Naples, where he gave lessons as a fencing-master. When the French were exiled from Italy in 1792, Augereau volunteered into the revolutionary armies of his country, and joined that which was intended to repel the Spaniards. As all the officers had emigrated, Augereau rose rapidly, and became in a short time Adjutant-General. It may be observed, that Dugommier, appointed to command the army of the Pyrenees, proceeded from the capital to his head-quarters on foot, so that the want of birth or wealth was no obstacle to Augereau. During 1794 he distinguished himself by the capture of an important foundry, and by extricating a division which, under another officer, had fallen into a dangerous position. Augereau received two wounds on this occasion. Soon after the army was divided, and Augereau was put in command of one division. He was then removed to a more important scene of warfare in Italy, and became one of the chief instruments in executing the first bold manœuvres of Bonaparte. It was under Augereau that the French carried the passes of Millesimo, in the spring of 1796: at Dego he again rendered eminent service; and again, Augereau's brigade, with himself at its head, rushed upon the bridge of Lodi, and finally carried it in the teeth of the enemy's batteries. He was foremost in the advance into the Venetian territories; and being dispatched to repel the hostilities of the Papal troops, he took Bologna. At Lugo, unfortunately, he was driven by the desperate resistance of the inhabitants to those excesses that rendered the name of Frenchmen execrable in Italy. He gave up the village to plunder and massacre.

The field of battle was Augereau's proper sphere; away from it, he descended into the rank of common men; and yet it was not merely as a subordinate general, or as an executor of his commands, that he rendered good service to Bonaparte. Ardent as this young commander was, he felt that the French had advanced too far, and that it was prudent for the present to retire before the fresh army under Wurmser, which Austria was pouring into Italy. Augereau combated the idea of retreat with all his energy; he represented the spirit of the army as invincible, and he at last decided Bonaparte to attack, instead of retiring. The consequence was the battle and victory of Castiglione, of the glory of which Augereau reaped the greater part. It also procured him the title which he afterwards enjoyed as Grandee of the French empire.

The most brilliant action of this campaign, so rich in feats of heroism and generalship, was the battle of Arcole, which took place in the middle of November. The object was to pass a bridge, defended not only by batteries of cannon, as that of Lodi had been, but also by overhanging walls and houses, from which the enemy sent a shower of fatal musquetry. The French had been several times repulsed, when Augereau, seizing a standard, bore it upon the bridge, followed by a column, which nevertheless was unable to advance against the grape-shot and musquetry. He

was unable to effect the passage over the bridge, but still he was rewarded by a decree of the Directory, granting to him, in commemoration of his bravery, the standard that he had borne on the occasion. [See ARCOLE.]

In the following year, 1797, the attention and interest of the French army were withdrawn from the foreign enemy, and fixed upon the parties which disputed for supremacy at home. The Directory was menaced by the Royalists, as well as in a great measure by the friends of constitutional government, who now began to rally to the cause of royalty in despair of realizing their ideas under a republic. But this party, amongst its other imprudent acts, committed the great mistake of making the armies hostile to it. Bonaparte was accused for his conduct towards Venice, and was treated as an accomplice of the Directory. The general replied by offering his services to the Directory, and by sending addresses from his soldiery in favour of republicanism. In the camp of the army of Italy Augereau was so loud in his execrations of royalty, and so extreme in his revolutionary ideas, that Bonaparte, at once to get rid of him, and to provide the Directory with a useful agent, sent him to Paris. Here he continued his tone of vaunting and violence amidst the feasts and honours with which he was welcomed, and he was soon named military commander of the district which included the capital. The very nomination was enough to warn the opposition that the Directory meditated violent measures, and they accordingly endeavoured to obtain the dismissal of Augereau. The *coup d'état*, or revolution of Fructidor, was planned by Barras, and ably executed by Augereau; the guard of the legislative body was driven from its post; the Tuileries, where the assembly sat was invested; the members hostile to the Directory were seized; and a most infamous act of illegality and injustice was consummated with the utmost skill and success.

Augereau was rewarded for this important service by the command of the army on the German frontier. Here he surrounded himself with the most furious Jacobins, and displayed so dangerous a spirit, that the Directory was obliged to deprive him of the command, and remove him to Perpignan. Augereau found his way to Paris, and was there on Bonaparte's return from Egypt. It is much to Augereau's honour that, discontented as he was with the Directory, and connected as he had been with Bonaparte, the latter could not count upon his assistance in the revolution of the 18th Brumaire. Bernadotte and Augereau were the only generals whom Bonaparte dared not summon to his side. Augereau was at St. Cloud; for he had been elected deputy to the Cinq Cents, and anxiously hoped that the representative body and the republic would triumph over the military usurper. While the result of the struggle was doubtful, he approached Bonaparte and said, 'Well, you have brought yourself into a pretty dilemma!' 'Augereau,' rejoined Bonaparte, 'remember Arcole; my fortune seemed more desperate there; yet I retrieved it then, and shall now!' He was right; the usurpation was completed, and Augereau obliged to submit with the rest.

Bonaparte distrusted his old comrade too much to appoint him again to the army of Italy. During the campaign of Marengo, Augereau commanded a division, for the most part Dutch, on the Lower Rhine, where he had hard fighting and little glory. After the treaty of Luneville, he retired to a property which he had been enabled to purchase near Melun. He was intrusted with no important employ until 1805, when, with the new dignity of Marshal, he commanded the division of the great army which reduced the Voralberg. In 1806 he was engaged in the battle of Jena, and commanded the division which subsequently took possession of Berlin. The terrible winter campaign which ensued undermined the health, but added to the glory, of Augereau. In the advance through Poland, he was frequently engaged, and commanded the left of the French at Eylau. His division, which was ordered to attack the centre of the Russians, advanced for that purpose, when a thick shower of snow covered both armies, and totally prevented Augereau from seeing. He missed, in consequence, the desired direction (so say the partisans of Napoleon), but his fault was remedied by the quickness of his commander, as well as by his own courage; though seized with sudden illness and fever, Augereau had himself tied upon his horse, and remained to the last in the action, though he was wounded.

After the battle of Eylau, he was obliged to retire for the recovery of his health. In the years 1809 and 1810, he commanded in Catalonia, where he showed but little mercy to the Spaniards. Considering Augereau as a veteran general, Napoleon, instead of taking him to Russia in 1812, left him to form a corps of reserve at Berlin. But here the Cossacks found him in 1813, and it was with some difficulty that he escaped. Notwithstanding his age, Augereau took part in the campaign of Saxony, and made a valiant stand near Leipzig, defending a wood against superior forces. In 1814 he was intrusted with the defence of the south-east of France against the Austrians, when he occupied Lyons, and organized its defence. At first he repulsed them in several combats; but at length, aware of their prodigious superiority of force, as well as of the diminishing resources of Napoleon, he made a capitulation, and retired to the south.

Napoleon considered his conduct on this occasion as little short of treachery; and it is certain that of all the Marshals, Augereau was the least attached to a master who was so much his junior, and who, by his usurpation, had blasted the ambition of the republican general. Augereau made his peace with the Bourbons, was confirmed in his dignities, and created a peer. On the return of Napoleon in 1815, Augereau kept aloof. Louis XVIII. being a second time restored, Augereau reappeared, when the painful task was imposed upon him of being one of the council to try Marshal Ney. His vote of condemnation on his brother soldier is the greatest blot upon Augereau's memory in the eyes of the French. He did not long survive, being brought to the grave by a dropsy in June, 1816.

AU'GILA, or AUDJELAH, as the Arabs pronounce it, is a town situated in an oasis within the great Desert of Barca, on the track of the caravans which trade between Cairo and Fezzan. Augila is mentioned in the antient geographers. Rennell, in his *Geography of Herodotus*, places Augila in 30° 3′ N. lat., and 22° 46′ E. long., 180 miles S.E. of Barca, or Bengazi, 180 W. by N. of Siwah, in the Oasis of Ammon, and 426 E. by N. of Moorzook in Fezzan. Herodotus (iv. 182) places Augila ten days' journey from the city of the Ammonians; and Hornemann, who travelled from Siwah to Augila in 1797, found the calculation correct. The Oasis of Augila is a dependence of the Beylick of Bengazi, which is itself a province of the regency of Tripoli. It contains two other towns or large villages, besides Augila, namely, Mojabra and Meledila. The people are chiefly employed in the caravan trade; and they have established, of late years, direct communications with the countries of Borgoo, Bornoo, and Bagherme, without passing through Fezzan. They have also caravans which trade with the port of Bengazi, on the Mediterranean Sea. The country round Augila is sandy and flat, but well watered and cultivated chiefly in gardens. Of the dates of Augila, spoken of with praise by old writers, and especially by Abulfeda, Hornemann makes no mention.

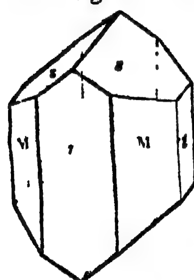
The women of Augila make grey woollen cloths, called Abba, which are sold in Fezzan. The town of Augila is ill built and dirty. The inhabitants speak, besides Arabic, another language which resembles that of Siwah, of which Hornemann gives a short vocabulary.

AUGITE. The minerals to which this name has been applied present us with some of the most interesting and at the same time most difficult investigations that can fall under the notice of the mineralogist and chemist, and have frequently occupied the attention of the most eminent men in both sciences. Nor are these bodies unworthy of such attention. For not only would a thorough knowledge of their constitution, and the relation which they bear to other minerals, particularly to the genus hornblende, tend much to the perfection of the mineralogical system; but, owing to their frequent occurrence in nature, and from their forming one of the principal ingredients in many porphyritic and trap rocks, such as the syenite, diallage, and schorl-rocks, green-stone, &c., they form a class of bodies of the highest importance to the geologist. A due regard to the circumstances which are favourable to the formation of one or other of the species, to the exclusion of the rest, would be likely to afford a safe guide in many geological inquiries into the character and formation of rocks of igneous origin. For such reasons we shall endeavour to lay this subject before our readors in as satisfactory a manner as possible; but in doing so we encounter considerable difficulty, owing to the uncertain state of our own knowledge on many im

portant points, as well as from the various views which have been taken of these minerals by different writers, the effect of which has been the use of the term 'augite' in a more comprehensive sense by some authors than by others. Under these circumstances, we have thought it most advantageous to give an outline of the different views which have originated from the highest authorities, rather than to adopt any one opinion which is not incontrovertibly established: the advantages which we hope to attain by this plan are twofold, namely, to avoid the risk of endeavouring to establish any erroneous opinions, while we attain a more comprehensive view of the whole.

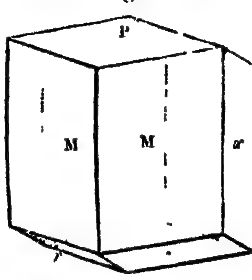
As little would be learnt by inquiring into the views taken of the genus augite before the time of Werner, it need only be stated, that this mineralogist was the first to divide a large class of minerals, occurring commonly in basalt, lavas, and other volcanic rocks, into two species, to which he applied the names of augite and hornblende. This division was founded on the difference existing between the crystallized forms and structure which, according to the experience up to that time, were never associated with each other. The same division was shortly after adopted by Haüy, who applied to them the names of pyroxene and amphibole, and gave the measurements, determining the oblique rhombic prisms, with their most general modifications characteristic of either species, which, however, we have modified by the later measurements of Rose, Mitscherlich, and Kupffer.

Augite, or pyroxene.
Fig. 1.



Inclination of M on M is 87° 6′
M on r 133° 33′
M on l 136° 27′
s on s 120° 57′
$\frac{s}{s}$ on r 106° 6′

Hornblende, or amphibole.
Fig. 2.



Inclination of M on M is 124° 31′
M on x 117° 44′
P on M 103° 13′
P on $\frac{M}{M}$ 104° 57′
r or r 148° 25′
$\frac{r}{r}$ or $\frac{M}{M}$ 104° 57′

By $\frac{s}{s}$, $\frac{M}{M}$, is meant the edge formed by the intersection of the faces s and s, M and M, &c.

Professor Mohs, however, together with Professor Jameson of Edinburgh, has used the term augite to denote the eighth genus of their respective systems, which consists of the four species designated as follows:—

First species. The oblique-edged augite, corresponding with the augite of Werner, and pyroxene of Haüy.

Second species. The straight-edged augite, corresponding to hornblende and amphibole.

Third species. Prismatoidal augite, containing as sub-species the minerals epidote or zoisite.

Fourth species. Prismatic augite; tabular spar, or Wollastonite.

Berzelius, on the contrary, viewing the subject in a chemical point of view, has been induced to use the term augite or pyroxene, hornblende or amphibole, in the same signification as employed by Werner and Haüy. According to him, the augites are composed of one equivalent of the bisilicate of lime, united with one equivalent of the bisilicate of magnesia, which expressed in his chemical notation, on the supposition, however, that silica is formed of one equivalent of oxygen to one of silicium, is



$$\dot{C}a\,\dot{S}i^2 + \dot{M}g\,\dot{S}i^2.$$

There are several varieties of this genus formed by the removal of the magnesia or lime, which are replaced either by one or both of the isomorphous substances—the protoxide of iron, and protoxide of manganese. Of these the following are the principal:—

1. Diopside, which may be considered as the type of the augite genus, is readily recognized by the form of its crystal given in fig. 1, and by the direction of its four cleavage planes, the most perfect corresponding with the faces M, those in the direction of r and l being less easily obtained; and by its pale-green, or greyish-white colour, and vitreous lustre. Its hardness is 5·5, and its specific gravity is 3·299. Alone before the blowpipe it melts into a colourless, semi-transparent glass; with borax, very readily into a transparent glass. Its chemical constitution is expressed by the formula given above, as will be seen by the following analysis of a variety from Tammare by Bonsdorff:—

Silica	54·83	Protoxide of iron	0·99
Lime	24·76	Alumina	0·28
Magnesia	18·55	Loss by heating	0·32
			99·73

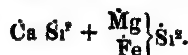
Several varieties, little differing from the above, are called backalite and fassaite, names indicative of their locality.

2. Hedenbergite, whose constitution may be stated by the formula $\dot{C}\,\dot{S}^2 + \dot{F}\,\dot{S}^2$, as may be seen by the analysis of G. Rose of a variety from Lunaberg, who obtained of

Silica	49·01
Lime	20·87
Protoxide of iron	26·08
Protoxide of manganese with magnesia	2·98
	98·94

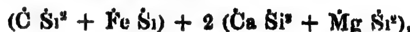
It is of a dark-green colour, sometimes nearly black.

3. Sahlite, those varieties in which the magnesia is only in part replaced by protoxide of iron, and whose composition G. Rose expresses by



$$\dot{C}a\,\dot{S}i^2 + \left.\begin{matrix}\dot{M}g\\ \dot{F}e\end{matrix}\right\}\dot{S}i^2.$$

Berzelius gives the formula,



$$(\dot{C}\,\dot{S}i^2 + \dot{F}e\,\dot{S}i) + 2\,(\dot{C}a\,\dot{S}i^2 + \dot{M}g\,\dot{S}i^2),$$

as expressing the constitution of a variety from Bjormyre, in Sweden, which would therefore be one equivalent of hedenbergite united with two of diopside. He calls it malakolith. (See *Anwendung der Lothrohrs*, by Berzelius.)

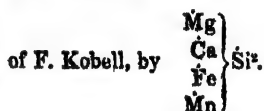
4. Diallage: the constitution of this variety is expressed, on the authority of



Berzelius, by $\dot{F}e\,\dot{S}i^2 + 3\,\dot{M}g\,\dot{S}i^2$,



of G. Rose, by $\dot{M}g\,\dot{S}i^2 + \left.\begin{matrix}\dot{C}a\\ \dot{F}e\end{matrix}\right\}\dot{S}i^2$,



of F. Kobell, by $\left.\begin{matrix}\dot{M}g\\ \dot{C}a\\ \dot{F}e\\ \dot{M}n\end{matrix}\right\}\dot{S}i^2.$

The difference in the analysis by Köhler of two specimens, the first from Tuscany, the second from Ultenthal in the Tyrol, would perhaps rather indicate the latter:—

Silica	53·20	56·81
Lime	19·08	2·19
Magnesia	14·91	29·67
Protoxide of iron	8·67	8·46
Protoxide of manganese	0·38	0·61
Alumina	2·47	2·07
Water	1·77	0·21
	100·48	100·02

This variety is characterized by its mother-of-pearl lustre, and by its possessing the most perfect cleavage in the direction of the diagonal of the prism. It is seldom found in perfect crystals. Its most general colour is a bronze yellow.

5. Hypersthene, which is very similar in its general appearances and characters to diallage, has the following constitution: $\dot{F}e\,\dot{S}i^2 + \dot{M}g\,\dot{S}i^2$. Both of the last-mentioned varieties may be distinguished from the former, as well as from each other, by means of the blowpipe, and by attending to the following characters as stated by Berzelius:—

Diallage alone in a matrass decrepitates, becomes of a lighter colour, and gives off a little water.

On charcoal it is with difficulty melted on the edges into a grey scoria.

With borax it is difficultly fused into a clear glass, somewhat coloured by the protoxide of iron,

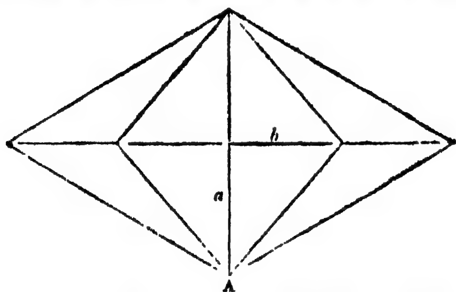
Decomposed by the phosphate of soda and ammonia, with the development of the silica.

Hypersthene, on the contrary, when heated alone in the matrass, decrepitates slightly, gives out a little water, but does not change its appearance; while on charcoal it readily forms a green opaque glass, as is also the case when heated with borax.

The salt of phosphorus does not apparently decompose it, but the mineral at first becomes rounded on the edges, and may at length be entirely fused.

The structure also deserves particular attention, the cleavage planes in hypersthene being perfect, both in the direction of the faces *r* and M, the latter of which are obtained in diallage with very great difficulty.

We have now described the various species generally considered as comprehended within the genus augite or pyroxene; but Professor Gustave Rose has published a paper in Poggendorff's *Annalen der Physik und Chemie* for the year 1831, the object of which is to prove the necessity of uniting augite and hornblende (pyroxene and amphibole) into one genus. His arguments for this union are the following:—he first shows that the two prisms of augite and hornblende, however different in appearance, admit of being derived the one from the other, according to the laws observed to connect the crystallographic forms of varieties of the same genus in other minerals. To show this, let the accompanying parallelogram, whose semi-diagonals are *a* and *b*, represent the horizontal section of the prism of



augite; since the whole angle of this prism at A is 87° 6′, *b* is the tangent of an angle of 43° 33′; if this tangent be doubled the corresponding angle will be found to be 62° 15′ 25″, the double giving 124° 30′ 50″, an angle agreeing most closely with 124° 31′, the angle obtained by Mitscherlich in a species of hornblende when measured by Wollaston's reflecting goniometer. The larger parallelogram, therefore, formed by doubling the diagonal *b*, is the horizontal section of the prism of hornblende.

A similar relation is also approximately true for the inclination of the faces *s* in augite and *r* in hornblende; for if the angle 120° 57′ of augite be halved, and its tangent doubled, the corresponding angle is 74° 11′ 21″, and by doubling this we obtain 148° 22′ 42″, not much differing from 148° 25′, as found between *r* in hornblende of Vesuvius by Rose.

His argument drawn from the chemical constitution of these minerals is by no means so satisfactory; for though in hornblende we find a series of bisilicates of the same bases, and as it were running parallel with those already described as augites [see HORNBLENDE], the circumstance observed by Bonsdorff, that all the varieties of hornblende contain fluorine, while G. Rose has been unable to detect that element in augite, weakens the connexion between these minerals, and renders the determination of what part the fluorine acts in their constitution a most desirable object. Our ignorance on this point, however, and the difficulty of determining what is the action of the alumina, which occurs in considerable quantity in some hornblendes, prevent us from forming any opinion from the results of chemical analysis.

The observations of Rose, however, on the green-stone of the Uralian Mountains, tend to prove the existence of that connexion between the forms of augite and hornblende which is essential to their constituting one genus, in a more satisfactory manner than any remark hitherto made. He discovered in a soft greyish green-stone, near the village of Mostowaja, which is situated north of Katharinenburg, and on the road to Newiansk, and also at the gold-washings of Cavellinski, near Miask, in a green-stone somewhat harder and darker than the former, imbedded crystals, having the form of augite, but not its cleavage planes, these last being found to coincide with those of hornblende. This mineral was therefore either hornblende in the form of augite, or augite with the cleavage planes of hornblende.

At the village of Muldakajewsk, near Miask, he discovered a still more interesting crystal embedded in a green-stone similar to that last described. They were abundant, and possessed the form of augite: the smaller crystals had cleavage planes parallel to the sides of the prism of hornblende, and were similar in their appearance and colour to those obtained from Cavellinski. The larger crystals, however, possessed a kernel of a grass-green colour, and of a lighter tint and greater lustre than the exterior. This kernel differed from the darker exterior portion of the crystal, the latter giving the cleavage of hornblende, while the former presented those of augite, with faces sufficiently bright and perfect to admit of measurement by the reflecting goniometer.

The observations of Mitscherlich and Berthier on the formation of augite as an artificial product are so interesting in themselves, and throw so much light on the nature of augite in general, and on those crystals we have just described, for which Rose proposes the name of uralite, that we cannot omit to notice them in this place. Mitscherlich has observed that at many foundries in Sweden and Germany the scoriæ possessed the form, structure, and chemical composition of certain minerals found in nature. From this source he has obtained upwards of forty varieties; and among these, specimens possessing the form and structure of augite are frequently found, whereas hornblende has never been discovered. Guided by these observations, a mixture of silica, lime, and magnesia in the proportion indicated by the formula $\dot{C}a\ \dddot{S}i^2 + \dot{M}g\ \dddot{S}i^2$ was submitted to fusion in the porcelain ovens of Sèvres, near Paris. On examination, the mass was found to have been completely fused: it possessed cleavage planes corresponding with those of augite, and a hollow formed in the centre from the contraction in cooling contained crystals of the form of fig. 1. By these processes they failed in obtaining crystals either of the form or structure of hornblende. As it would be at present out of place to refer to the other results obtained by those chemists, we must refer our reader to the original papers in the *Ann. de Chimie et de Physique*, tom. 24, and the *Ann. des Mines*, tom. 9, particularly those who may be interested in metallurgical processes.

Professor G. Rose, in accounting for this production of augite to the exclusion of hornblende, was led to consider that it was not the absence of the fluorine, or any error in the proportion of the elements, which prevented the production of hornblende, but that it was the effect of the rapid cooling. This he fully confirmed by the following experiments: a light-green variety of hornblende, the strahlstein of the Germans, from Zillerthal in the Tyrol, was submitted in a platinum crucible to the heat of a porcelain oven. It was completely fused, and in cooling had formed fibrous tufts of dark crystals, which, however, admitted of measurement by Wollaston's goniometer, when the angles were found to correspond with those of augite. A specimen of diopside, of the same locality, was also fused. it cooled into a dark mass, but regained its former structure.

We may therefore consider it to be demonstrated that augite is formed whenever the process of cooling, and consequently of crystallization, is rapid; and hornblende, when it is conducted more slowly. Many circumstances confirm this view: the uralites of Rose appear to be its natural consequence; for, as by the laws of caloric we know that the quantity of heat lost during equal portions of time varies with the temperature, the exterior portions of the crystal from this cause alone must have crystallized under a more gradual loss of heat than the interior, while at the same time the temperature would be maintained by the specific heat given out by the parts first consolidated. The general localities of augite and hornblende, and the minerals with which they are found associated, affords another argument in favour of this supposition; for hornblende is usually met with in syenite, trachyte, and lava, accompanied by quartz, feldspar, albite, &c., minerals which decidedly require a slow process of cooling for their formation; on the contrary, augite occurs in basalt and lava with olivine, which Mitscherlich has recognised in the scoriæ of various foundries, and which is therefore formed by a process of rapid cooling. We are thus able to account for H. von Buch's remark in his observations on volcanos, that those lavas which contain feldspar have hornblende, but no augite.

Induced by these circumstances, Rose, in a tabular view

of the minerals which he has added to his *Elements of Crystallography*, published at Berlin in 1833, has united into one genus the following species.

1. Diopside . $\dot{Ca}\,\dot{Si}^2 + \dot{Mg}\,\dot{Si}^2$.
2. Sahlite . . $\dot{Ca}\,\dot{Si}^2 + \left.\begin{matrix}\dot{Mg}\\ \dot{Fe}\end{matrix}\right\}\dot{Si}^2$.
3. Hedenbergite $\dot{Ca}\,\dot{Si}^2 + \dot{Fe}\,\dot{Si}^2$.
4. Basaltic augite . $\dot{Ca}, \dot{Mg}, \dot{Fe}, \ddot{Al}, \dot{Si}$.
5. Rothbraunsteinerz $\dot{Mn}\,\dot{Si}^2$.
6. Acmite . . $3\,\dot{Na}\,\dot{Si}^2 + 2\,\ddot{Fe}\,\dot{Si}^2$.
7. Diallage . . $\dot{Mg}\,\dot{Si}^2 + \left.\begin{matrix}\dot{Ca}\\ \dot{Fe}\end{matrix}\right\}\dot{Si}^2$.
8. Bronzite . . $\dot{Mg}\,\dot{Si}^2$.
9. Hypersthene . . $\dot{Mg}\,\dot{Si}^2 + \dot{Fe}\,\dot{Si}^2$.
10. Uralite . .
11. Tremolite . $\dot{Ca}\,\dot{Si}^2 + 3\,\dot{Mg}\,\dot{Si}^2$.
12. Antophyllite . $\dot{Fe}\,\dot{Si}^2 + 9\,\dot{Mg}\,\dot{Si}^2$.
13. Strahlstein . $\dot{Ca}, \dot{Mg}, \dot{Fe}, \ddot{Al}, \dot{Si}$.
14. Basaltic hornblende $\dot{Ca}, \dot{Mg}, \dot{Fe}, \ddot{Al}, \dot{Si}$.

AUGMENTATION, in music of the olden time, was, as *Maister* Morley tells us, 'an increasing of the value of the notes above their common and essential value,' and indicated by a sign. It is unnecessary to dilate on this term, which, as well as many others of the same date, has long been known only to musical antiquaries.

AUGSBURG, the capital of the Bavarian circle of the Upper Danube, stands on a gentle eminence in an agreeable and fertile country, near the influx of the Wertach into the Lech, and between both those rivers, in 48° 21′ N. lat., and 10° 54′ E. long. It lies 1460 feet above the level of the ocean, about forty miles N.W. of Munich; and both from its position, and the number of main roads which traverse it, has long formed one of the central points for the internal commerce of Germany. It is divided into three quarters, the upper, centre, and lower towns, independently of the suburb of St James, which lies outside of the walls; it is intersected by four canals, which supply the mills and manufactories of the town with water. The exterior boundary of the glacis has been converted into delightful walks, along which the circuit of the city may be made in a couple of hours; and within the glacis runs a wall flanked with towers, bulwarks, and ditches, which are crossed by four principal and six minor entrances. The streets, with few exceptions, are narrow and irregularly built, and the pavement annoying to the feet, being composed of small flints—though its disposition in a mosaic form is not unpleasing to the eye. The general appearance of the town is however much improved by a variety of handsome buildings and squares, and enlivened, though it can scarcely be said to be embellished, by the manner in which the generality of the houses are painted with stripes, either green, red, or yellow — always separated by white. Every street and lane is provided with reservoirs of water for the use of the adjoining houses, and a separate work for the purpose of forcing the water into them.

The finest edifice in Augsburg is the town hall, which was built by Holl, in the beginning of the seventeenth century, and contains the 'Golden Hall,' perhaps the most splendid apartment in Germany, its length being 110, its breadth 58, and its height 52 feet; it was used for the election of two kings of the Romans, and was decorated at a great expense with painted ceilings and frescoes, by Krager and Rottenhammer, the former of whom was elevated by the gratitude of his fellow-citizens to the Burgomaster's chair. This hall, with the four royal apartments adjoining, has since been appropriated to the purpose of a picture-gallery. Among the thousand paintings which it contains (the whole arranged in chronological order), it is particularly rich in specimens of the German school: Kranach's 'Samson and Dalilah;' Albert Durer's 'Maximilian the First;' Krager's 'Last Judgment;' and Rottenhammer's 'River Gods of Augsburg,' stand at the head of the series; but few will feel disposed to prefer even such as these to Guido's 'Sleeping Infant;' Titian's 'Venus holding a Mirror to Cupid,' or Parmigiano's 'Madonna.' The collection of models from the antique, which occupy another apartment in the town-hall, is less in character with its external device, 'Publico consilio, publicæ saluti,' than a very complete and well-arranged collection of another description, containing the archives of the town. Adjoining this fine structure is the 'Perlach Tower,' which is ascended by a staircase of 500 steps; and the 'Arsenal,' the façade of which is embellished with a noble group, representing 'the Demon of War vanquished by Michael the Archangel,' the work of Reichel Von Rain, the Bavarian sculptor. The episcopal palace (the town being still the seat of a bishop's see) is on the Frohnhof near the cathedral; it was under this roof that Luther held his celebrated disputation with Cajetan, the papal legate, in the year 1518; and under the same roof, on the memorable 25th June, 1530, this great reformer presented the corner-stone of the Lutheran faith, commonly called the 'Confession of Augsburg,' to the emperor Charles the Fifth. Augsburg was the place from which that sovereign, urged by the undaunted bearing of the protestants of Germany, proclaimed the 'Interim,' or religious armistice, which recognised them as a distinct and independent communion. Augsburg also witnessed the signature of the treaty of 1555, which sheathed the sword of religious strife, and left the protestants in the full enjoyment of their dearly-purchased immunities. The venerable walls of this palace were, in 1817, converted partly into offices for the government of the province, and partly into apartments for the occasional residence of royalty. Among other conspicuous buildings are the 'Halle,' a handsome commercial mart and storehouse, which has a machine for weighing loaded waggons and merchandise in bulk, and is now partially used for judicial proceedings, the public library, which is rich in Greek books and manuscripts; the Franciscan academy of arts; the school of the arts; and the 'Cathedral,' which was built in the fifteenth century on the site of the ancient Basilica, erected in the tenth. This edifice is 350 feet in length, and of the Gothic order; its main aisle is 45 feet in breadth, and the side aisles are fitted up with four and twenty chapels, independently of several pictorial embellishments of some merit, and two stone portals which divide the main aisle from the choir; there is also a side door of bronze, carved with figures and emblems, dating from the year 1018. A visit to St. Ulrich's church, which is 310 feet in length and 94 in width, will be amply repaid by the prospect from its lofty steeple (which is 118 feet higher than the monument in London) of the town and its environs, to say nothing of that fine specimen of sculpture called the 'Altar of the Crucifixion,' and other striking objects. Of the numerous monasteries, convents, and ecclesiastical structures of Augsburg, fifteen churches only remain, five of which are appropriated to the use of protestants. In charitable endowments there are few spots of the same extent so rich; and we believe that three-quarters of a million sterling are rather below than above the aggregate capital which those endowments possess. At the head of them stands the institution called the 'Fuggerei,' established in the year 1519 by two brothers of the Fugger family, who were the founders of more than one earldom of the present day; it is a town of itself, situated in the suburb of St. James, has its own church, consists of three streets and as many lanes, has three gates, and contains 107 lodgings, let out to indigent natives of the town, at a rent of two shillings per annum. A philanthropist of our own times, Lawrence Schaetzler, a banker of Augsburg, has more than emulated this 'good work' of commercial munificence: first, by establishing a school of industry for 100 poor children and orphans of this his native town, in 1813; and then, twelve months afterwards, by erecting an asylum within the walls of the old Dominican monastery for the reception and partial maintenance and employment of sixty-three aged males, forty-seven operatives, and seventy-six children, who are educated on the Lancasterian system. To these institutions may be added an admirably-conducted orphan asylum, and a bank for savings. An equally liberal and enlightened spirit has animated the more affluent classes in making provision for the instruction of their humbler fellow-citizens; every religious community in the town has schools of its own; the twenty-seven week-day schools are attended by nearly 2000 children, the Sunday schools by upwards of a thousand, and the three female schools of industry by four hundred. Between five and six hundred youths of superior

rank are educated in the protestant gymnasium and the catholic seminary; and there are, besides, two endowed schools for females, the one founded by Barbara Von Stettenschen, who died in 1805, for protestants, and the other conducted by the English sisterhood, for catholics; as well as a polytechnic institution.

Among the public embellishments of the town we must not omit to notice the Grand Parade in front of the cathedral; Maximilian-square, next to St. Ulrich's church; and several open areas, which are adorned with handsome fountains: the general character of these embellishments shows the close relationship which once subsisted between Augsburg and the Italian states. 'In the better days of Augsburg, indeed, when the munificence of its citizens was lavishly bestowed on the fine arts, and its native school produced such men as Rugendas, Hecker, Holzer, Rieger, and Frey, the fronts of every respectable dwelling shone with the glories of the pencil, and the whole Scriptures might be studied in fresco illustrations out of doors. Not only the fine arts, but science and the belles-lettres found patrons in the merchants of Augsburg: their cabinets and libraries vied with their gardens and mansions: the first tulip known in the west of Europe was brought to Augsburg from Constantinople, and planted by Heerwart, in 1557. Such, in short, was the splendid appearance of this city at the close of the sixteenth century, that Bentivoglio himself was tempted to exclaim, on witnessing it, 'Questa Augusta certamente ha dell' Augusto negli edifici, nelle strade, et nel popolo!

The principal sources of the present affluence of Augsburg are banking and exchange operations, and the transit of merchandise. It is a staple town also for the deposit and sale of the wines of Italy, Switzerland, and the south of Germany, and still enjoys repute for its plate and jewelry. It has above 200 mercantile establishments, and an annual circulation, varying in value from three to four millions sterling, in bills and merchandise. The linen and cotton manufactures have decreased, within the last forty years, from 1200 to scarcely more than 200 looms; the woollen and linen-yarn spinneries, which formerly circulated nearly 20,000*l.* a week in wages alone, have of late dwindled into comparative insignificance; but the manufacture of parchment, and particularly of plain and coloured paper, continues to thrive. Augsburg has indeed strong claims to the merit of having invented the art of making paper from rags, which came into use here as early as the year 1330—a date at which, we believe, no record is extant of its use elsewhere. Its mechanics, too, from their experience in wood-cutting and in stamping cards in colours, had acquired that species of skill which rendered the process of printing an easy task to their hands: they were among the first, therefore, to avail themselves of Guttenberg's invention. Latin Bibles, bearing the date 1466, and a legend printed in 1471, both from the Augsburg press, are sufficient evidence of the fact. Great numbers of the ordinary class of books, prints, and charts are engraved and circulated throughout Germany from Augsburg; and the present Baron Cotta's father, the proprietor of the celebrated *Allgemeine Zeitung*, and the founder of two popular periodical works, the *Morgenblatt* and *Abendzeitung*, selected Augsburg for the establishment of one of his four extensive presses, which is set in motion by one of Bolton's steam-engines. This press was constructed by Kœnig, the finest and earliest specimen of whose mechanical skill is to be seen at the *Times* office, in Printing-house Square, Blackfriars. The machine at Augsburg, which consists of three presses, throws off from five to ten thousand copies of the *Allgemeine Zeitung* in the course of four or five hours, and, with the assistance of eight boys, does the work of sixty pressmen; and it is likewise used for printing the two literary journals. No branch of industry, however, is in a more thriving state than the woollen manufactures of this town, which give employment to nearly six hundred looms. The working of the latter is greatly facilitated by the canals supplied from the Lech, which set 140 wheels in motion, and are traversed by 220 bridges and crossings. Augsburg produces about eighty tons of beet-root sugar per annum; and manufactures mathematical and musical instruments, paper-hangings, printing-types, and carpets, and a variety of articles of pure luxury. Its population at the present day amounts to about 35,000, of whom rather more than one-third are protestants; but it was much greater in former times, for the yearly average of births, which are at present under 900, was upwards of 2200 in the beginning of the sixteenth century; even in the seventeenth they were above 1000; and in the middle of the eighteenth they increased again to nearly 1300; from which number they have since gradually declined to their present average. We may add, that at the close of the sixteenth century the number of its inhabitants is stated to have been 80,000.

The emperor Augustus planted a colony here, about twelve years before the Christian æra, to which he gave the name of 'Augusta Vindelicorum' (the city of the Vandals on the Lech), and hence comes the name of Augsburg. There is nothing to note in its subsequent fortunes until the fifth century, when it was pillaged by the Huns; it afterwards came under the dominion of the Frankish sovereigns, and in 788 was almost razed to the ground during the war which raged between Charlemagne and Tassilo of Bavaria. Upon the dissolution of the Frankish monarchy, Augsburg fell under the sway of the dukes of Swabia; but growing rich by its commerce and manufactures, it gradually shook off all external authority, purchased its independence of its episcopal sovereigns, was recognised as a free state by the German emperors, and retained its rank as a free imperial city for upwards of five hundred years—namely, from 1276 to 1806. From about the twelfth until the sixteenth century, it was a leading member of the famous Swabian Confederacy, which included Ratisbon, Nuremberg, Constance, and other commercial emporia of that day. In the fourteenth century it was the chief medium of intercourse between the north and south of Europe and the Levant, and supplied the markets of northern Germany, Russia, Poland, and other countries, with woollens and linens; and it retained its mercantile pre-eminence until the transatlantic discoveries of the Spaniards and Portuguese, at the close of the fifteenth century, opened new channels to commercial enterprise. It was at this period of its highest prosperity that the single banking establishment of the Fuggers of Augsburg recruited the finances of Philip II., and enabled him to support the sanguinary warfare carried on by the League in France, and by his own generals in the Low Countries. Previously to these times (namely, in the year 1368) the plebeian order in Augsburg raised the standard of insurrection against their patrician fellow-citizens, and established a democratic form of government. This endured about 160 years, at the close of which the patrician order, abetted in their attempt by Charles V., once more regained the ascendency. In the seventeenth century, the rise of Frankfort on the Main inflicted a blow on the prosperity of the town from which it has never recovered. Augsburg indeed has ceased to be a place of importance in the circulation of exchange in Europe, and Frankfort is now the chief money-market of central Germany. A law was made in Augsburg (the date we are not acquainted with), that an Augsburg merchant might, at any time between the acceptance and the maturity of a bill drawn on him from any foreign place, cancel his acceptance; in other words, his acceptance was not binding. Whether this law now exists we are not quite sure, nor can we undertake to say how much of the decline of the commerce of Augsburg is due to it. Under the settlement of Germany, in 1802, Augsburg was recognised as one of the six Hanse Towns, which were declared independent of the German empire; but three years afterwards it was merged into the dominions of Bavaria, under the treaty of Presburg; and in March, 1806, it was surrendered accordingly into his Bavarian majesty's hands, by the French general René, acting under the orders of Napoleon Bonaparte.

Augsburg is the birth-place of Holbein, Holl, and other eminent artists. The gardens and places of public resort around it, as well as the rides and walks in its delightful environs, afford a resource which will agreeably diversify a lengthened residence in the town; nor less so the numerous societies within its walls, both musical and literary, with its libraries and museums.

AUGSBURG, CONFESSION OF, the name given to the profession of faith of the Protestant Lutheran Church, which was drawn up by Melanchthon, with Luther's approbation, in order to be laid before the Emperor Charles V. at the great Diet held at Augsburg in June, 1530. It was on that occasion solemnly read in the German language by the Chancellor of Saxony, after which two copies of the Confession, one in German and the other in Latin, were delivered to the Emperor, bearing the signatures of John Elector of Saxony, George Marquis of Brandenburg, Ernest Duke of Luneburg, Philip Landgrave of Hesse,

and Wolfgang Prince of Anhalt; besides those of the free town of Nuremberg, and other cities. The Confession was immediately afterwards printed, and, being translated into various languages, was spread over Europe. It has ever since continued to be the rule of the Lutheran Church in matters of faith. It consists of twenty-eight articles, twenty-one of which state the belief of the Lutherans on the principal tenets of religion; and the other seven consist of refutations of certain points of either dogma or discipline as maintained by the Roman Catholic Church, and on account of which the Lutherans separated from the communion of Rome. Zuingle and the other Swiss and French reformers did not subscribe to the Confession of Augsburg, as they differed from it on several points, particularly about the Lord's Supper. The style of the Confession is clear and fluent; the matter was chiefly supplied by Luther in the seventeen articles of Torgau, which he had presented to the Elector of Saxony the year before. Melanchthon, while drawing up the Confession, had frequent conferences with Luther, who was then staying at Coburg, not far from Augsburg. The Papal theologians, headed by Faber, wrote a confutation of the Augsburg Confession, which was likewise read before the Diet in August of the same year. Melanchthon answered them in his *Apology for the Augsburg Confession*, which was published in 1531, and which constitutes one of the books of authority of the Lutherans which were published, including the Confession, at Dresden, in 1580. Ernest Solomon Cyprian has written a good history of the Augsburg Confession, and Webber a *Critical History* of the same, Frankfurt, 1783. (Schrœckh's *Kirchengeschichte*, and Mosheim's *Ecclesiastical History, and Notes*, by Dr Murdoch.)

AUGSBURG GAZETTE. [See ALLGEMEINE ZEITUNG.]

AUGST, a village in the canton of Basle, in Switzerland, built on part of the ground occupied by the antient Augusta Rauracorum, a Roman colony under the empire. The remains still existing are not very considerable; they have been minutely detailed by Schœpfer in his *Alsatia Illustrata*. Medals of Roman emperors have been found in abundance in the ground. Augst is situated on the left or southern bank of the Rhine, six miles S.E. of Basle.

AUGUR. The earliest inhabitants of Italy, like all rude nations, imagined that they saw in every unusual occurrence a manifestation of the will of heaven. The power of interpreting the signs thus furnished by the gods was thought to depend upon a peculiar talent conferred upon the favoured mortal from his birth, but a certain discipline was necessary to give to the talent its full development. A superstition so deeply seated in the minds of the people was turned to account in the political constitution of Rome, by the establishment of a college of augurs, whose duty it was on all occasions of importance, whether of a public or private nature, by certain arts to ascertain and report the pleasure or displeasure of the gods. Romulus himself was said to have been skilled in the arts of divination from his earliest youth, and at the foundation of the city the claims of the rival brothers were decided by augury. The story of Tanaquil, of Servius Tullius, and still more the contest between the elder Tarquin and Attus Navius, afford additional evidence of the peculiar nature of this Roman superstition.

The institution of the college of augurs may be referred to the very earliest period of Roman history; for the assertion of Livy (i. 18, and iv. 4), that there were no augurs in the reign of Romulus is not merely opposed to the general tenor of the history of Rome, but directly contradicted by Cicero. (*De Republica*, ii. 9.) The original number of augurs is again differently reported. Cicero, himself an augur, says that Romulus associated three others with himself, and that Numa added two. (*Ibid.* 14.) Livy reports that in the opinion of the augurs of his time the number of the college was necessarily related to the number of the antient tribes, and that consequently there must have been at the beginning either three or six; so that each of the three tribes should have either one or two augurs. On the other hand, the same author found it recorded in the annals of Rome that, prior to the Ogulnian law, there were but four members of the college. In these different accounts Niebuhr [illegible] strong reasons for giving the preference to [illegible] the notion of there having been three or six seems to have been a mere inference from the number of the tribes: [illegible] tribes had stood on an equal footing the argument would have had much weight. But the same writer has fully established the fact that the first two tribes possessed higher privileges than the third, and this in a more marked manner in the offices of a religious character, so that the number four, two for each of the privileged tribes, seems to point to a similar distinction in the highly-important powers of the augurate. On the other hand, though Cicero's evidence is in favour of the number six, his mode of accounting for that number is wholly at variance with the reasons of the augurs as reported by Livy. Again, if, as Cicero implies, Romulus was a member of the college, his successors in the regal power must have succeeded likewise to the augural office, a supposition in no respect confirmed by history, and scarcely compatible with what is reported of Tarquin's dispute with Attus Navius. Moreover, if such a power had passed through the hands of the kings, it remains to be asked what course was pursued at the change of the government from the regal to the consular form. At that revolution the political powers of the king devolved upon the consuls, or prætors as they were at first called, those of a religious character upon the priest, called *rex sacrificulus*, but there is no trace of evidence to show that the authority of the latter ever included the powers of the augurate. Under this view of the subject, Niebuhr is of opinion that originally the Ramnensian tribe possessing the chief powers of the state had its two augurs, that at a later period, when the Titienses were admitted to a share of these privileges, two others were added. This is confirmed by the statement of Cicero that Numa added two to the college, for the name of that king is always connected with the privileges of the second tribe. Livy, in his wish to reconcile the different accounts, has been driven to the supposition that when the Ogulnian law was brought forward, there may have been two vacancies by death, but it is not probable that the patricians would allow themselves to lose two seats in the college through such an accident, especially as even after the law was brought forward it was not too late for the remaining augurs to fill up the supposed vacancies—for in them the election resided. The Ogulnian law, which was brought forward by Q. and Cn. Ogulnius, and passed in the year B.C. 307, opened the pontifical and the augural colleges to the plebeians. (Liv. x. 6, 9.) In the latter, five plebeians were associated with the four patricians, and this number remained to the time of Sulla, B.C. 81, who increased it to fifteen. (Liv. *Epit.* 89.) Lastly, among the many extraordinary powers conferred upon Augustus in B.C. 29 was the right of electing augurs at his pleasure, whether there was a vacancy or not, so that from that period the number of the college ceased to be definite. (Dion, xli. 20.)

But a more important point than the number of the augurs was the mode of election. At first, the augurs, like the other priests, were elected by the patrician assembly of the Curies, called the Comitia Curiata: but no election was complete without the sanction of the augury, so that the college possessed a virtual veto upon the admission of all members into it. (Dionys. ii. 22.) This power was not unlikely to lead to a gradual usurpation of the elective right; and thus, as early as the year B.C. 452, we find it the practice of the college to fill up vacancies by co-optation as it was called, that is, by the votes of the existing augurs. (Liv. iii. 32.) This mode of election continued to the third consulship of Marius, B.C. 103, when the tribune Cn. Domitius Ahenobarbus carried a law, that in case of any vacancy in any of the sacred colleges, seventeen out of the thirty-five tribes chosen by lot should, by a majority of the votes of the said seventeen tribes, nominate a successor, whom the college should be bound to elect. (Cic. *contra Leg. Agrar.* ii. 7, &c.) The return of Sulla to power restored the election to the colleges; but in the consulship of Cicero (B.C. 63) T. Attius Labienus, with the support of Cæsar, procured the reversal of Sulla's law. (Dion, xxxvii. 37.) After the death of Cæsar, Antony restored the old law, at least in the election of the chief pontiff, and therefore, most probably, in that of the other priests. (Dion, xliv. 53.) We have already mentioned that the emperors had the privilege of appointing augurs at their own discretion.

The ceremonies and superstitions which constituted the supposed science of the augurs would be tedious to enumerate; but that which especially characterized the augural office was the pretended power of ascertaining the divine will from the flights of birds. For this purpose the augur selected some elevated spot, on which he sat with his head veiled and his face turned towards some par-

ticular quarter of the heaven, varying perhaps according to the occasion; for the accounts differ so much that, while Livy says it was the east, we have the authority of Varro for the south, and Frontinus for the west. Then the augur, with a bent wand or crook, free from knots, called a lituus, marked off a certain portion of the heavens and of the earth, within which his observations were to be made, and again divided this portion into two parts—the right and left. The space so defined in the mind of the augur was called a *templum*, and the steadfast observation of the augur directed upon it may probably account for the meaning of the Latin word *con-templari*, 'to contemplate,' which has been adopted into our own language. The gods then signified their approbation by the appearance of birds on the left, and the augury was complete. For some purposes the whole circumference of the heavens, together with the corresponding parts of the earth, were divided, according to the rules of the art, by lines directed to the cardinal points, and others parallel to these. (Liv. i. 18, Dionys. ii. 70, and the appendix to the translation of Niebuhr, vol. ii.) So prominent a place did the feathery creation hold as the interpreters of the divine will, that *avi*, the Latin for bird, is the chief element in the term *augur*, as it is also in the nearly equivalent word *auspex* (*avispex*). In the latter, the second syllable is deduced from *spec*, look, so that the word signifies bird-observer. The second element of the word augur does not admit of satisfactory explanation from any existing word in the Latin language. We have called the terms nearly equivalent, and if Plutarch's authority had been sufficient (*Romaica*, c. 72), we might have dropped the qualifying adverb. But a Roman antiquary would have pointed out many distinctions between them. The most important of those is, that the leading magistrates of Rome possessed the auspices (Cic. *De Leg*. iii. 3) by virtue of their office, while the term augurium never refers to any other than an augur. The name auspex does not appear to have been in early times a technical word, and indeed was but rarely employed; but the derivatives from it were frequently used, and applied with considerable latitude to the augurs as well as to the magistrates. The objects of the auspices and auguries were nearly the same, and the means employed of a similar nature. Moreover, all legal disputes about the auspices of the magistrates seem to have been referred to the augurs. Under all these circumstances we shall not attempt to draw a very nice line between them.

There were, as we have already stated, besides the movements of birds, a variety of other occurrences in the physical world which, as expressive of the will of heaven, came under the cognizance of the augurs. We shall not attempt to give a catalogue of all the forms which the superstitions of man may take; but absurd as these forms may have been, the political power of the augurs was most substantial. The election of a king, a consul, a dictator, a prætor, a curule ædile, of the various priests, pontifex, augur, vestal, flamen, &c., all were void unless the auspices were favourable. A general could not cross the pomœrium, or sacred boundary of Rome, the frontier of the state, or even a river, without the sanction of his birds. To engage an enemy in defiance of these interpreters of the will of heaven was sure to entail present or future defeat. In the assignment of public lands the science of the augur was required to mark out the different allotments. Among the patricians, the presence of an augur was necessary to render valid many of the proceedings of private life, as marriage and adoption; and the same political body found in the auspices a powerful argument against the rising claims of the plebeians. The auspices, they said, were their peculiar privilege, and as the leading magistrates could not fulfil their duties without such divine assistance, there was an insuperable bar to the election of plebeians. Of the three comitia, or legislative assemblies, that of the curies, being the special assembly of the patricians, was of course subject to the auspices; the same was the case with the mixed assembly of the centuries; but that of the tribes was free from such control. Of the two last (for the comitia curiata became obsolete) the assembly of the centuries was the most important, as possessing the election of the leading magistrates; and so complete was the veto of an augur in this assembly, that if he but heard a clap of thunder, nay, if he but said he had heard one, and that falsely, the proceedings of the assembly were void. Such was the power of the augural office; and it was strengthened by the law that a man once created an augur was an augur for life, no matter what crimes he might commit. (Plin. *Ep*. iv. 8; Plutarch, *Romaica*, 97.) On the pecuniary advantages of the office there are no very definite statements. That they received money in some shape from the public treasury is indeed positively stated (Dionys. ii. 6); and the poet Attius has made a bad pun at their expense, charging them with extracting *aurum* (gold) from the *aures* (ears) of those who believed in them; and the public money may perhaps be traced in the dinners given by the augurs on their election, which were celebrated in the annals of Roman gastronomy. (Cic. *ad Fam*. vii. 16; Varro, *R. R.* iii. 6; Plin. *H. N.* x. 23.) In the latter years of the republic many of the duties of the augurs were performed in the most lax manner. At the inauguration of a magistrate, says Dionysius (ii. 6), speaking of his own time, the ceremony is a mere shadow of what it was. The candidate takes his seat, rises, repeats a set prayer in the open air, an augur then declares he hears thunder on the left, when in fact there was none, and the candidate forthwith enters upon his magistracy.

AUGUST. The month of August was originally called Sextilis, being the sixth month in the Alban or Latin calendar; and this name, as is stated, it retained in the calendars of Romulus, Numa Pompilius, and Julius Cæsar. Since Numa's reform, however, it has held only the eighth place in the series of months. In the Alban calendar, Sextilis consisted of twenty-eight days; in that of Romulus of thirty; Numa reduced the number to twenty-nine; Julius Cæsar restored it to thirty; and Augustus Cæsar, from whom it derived its new name of August, extended the number of days to thirty-one, which has continued ever since.

It was originally proposed that September should bear the name of Augustus, from the emperor having been born in that month; but he preferred Sextilis, not only as it stood next to July, which had been recently named after his predecessor Julius, but for the same reasons which influenced the decree of the Senate detailed by Macrobius, in his *Saturnalia* (edit. Bipont. i. 261), viz., that since it was in this month that the Emperor Cæsar Augustus had entered upon his first consulship—had celebrated three triumphs in the city—had received the allegiance of the soldiers who occupied the Janiculum—had subdued Egypt, and put an end to civil war—it appeared that it was, and had been, propitious to the empire; and the Senate therefore ordained that Sextilis should thenceforward bear the name of Augustus.

Gassendi (*Kalend. Romanum*, apud Græv. viii., col. 164) says that Commodus wished to have had the month Sextilis called by his own name.

The Flemings and Germans have adopted the word August for Harvest; *Oogst maand* is the harvest-month. (Hadr. Junius *de Annis et Mensibus*, apud Græv. Thesaur. viii., col. 217.) So the German *Augst-wagen*, a harvest-waggon (see Wachter, *Glossar. German.*); and the Dutch *Oogsten*, to reap or gather corn from the field (Sewel's *Dutch Diction.*) The Spaniards also have the verb *Agostár*, to gather in harvest; and both French and Spaniards have phrases for making harvest, *faire l'Aoust*, and *hazer su Augusto*.

Our Saxon ancestors named August Ƿeoꝺ monaꝺ, the weed-month, as abounding in noxious and useless herbs. (*Saxon Menolog*., and Lye's *Saxon Dict*. in voce.)

Lammas Day, the first of the month, is also called the Gule of August (see Brand's *Popular Antiq*., i. 275), probably from the Gothic HIOL or IUL, a *wheel*, indicating that revolution of season which brought the return of harvest. This day, called by our Anglo-Saxon ancestors Hlaf-mæsse, *i.e.* loaf mass, was the feast of thanksgiving for the first fruits of the corn.

(Compare Pitisci *Lexicon Antiq., Græc. et Roman.*, v. Augustus; the different Treatises printed in Grævius's *Collection*; and Brady's *Clavis Calendaria*, i. 78.)

AUGUSTA. This title was first given to his wife Livia after the death of Augustus according to the will of the emperor. (Tac. *Ann*. i. 8.) It was afterwards conferred by Claudius on Agrippina (A.D. 51.), and by Nero on his wife Poppæa as well as her daughter (A.D. 64). Eventually it became a common title, of the mother, wife, sister, or daughter of an emperor. [See AUGUSTUS.]

AUGUSTA. This name was also frequently adopted by towns, sometimes in place of, sometimes in addition to the previous name; also many new colonies received it. Thus we find Augusta in the country of the Salassi, now Aosta; Augusta Taurinorum, now Turin; Augusta Rauracorum, now Augst near Basle; Augusta Vindelicorum,

now Augs-burg, sometimes written Augstburg; Cæsar-Augusta, now Sar-agossa. Nearly similar to these is Augusto-dunum, formerly Bibracte, the capital of the Ædui, now Autun. In other towns it has disappeared, as in Augusta Verona and Augusta Asturica, now Astorga. The Greek cities pursued the same course of flattery in the use of the equivalent Greek term Sebaste. Thus we find a Sebaste in Phrygia (see HIEROCLES and COINS); another in Galatia in the country of the Tectosages, probably no other than Ancyra, which was intimately connected with Augustus (COINS); Sebastopolis in the district of Pontus, called Phanaroea (Strabo), and Sebaste or Sebastia, on the upper stream of the Halys, now Sivas (*ibid.*), &c.

AUGUSTA, a town of Maine in the U. S. on the river Kennebec, 56 miles N.N.E. of Portland, in 44° 17′ N. lat., and 69° 50′ W. long. It is a thriving town, and has, by an act of the state legislature, been made the seat of the state government since January, 1832. The river Kennebec is navigable from its mouth up to Augusta, for vessels of 100 tons. There is at Augusta a fine bridge across the Kennebec. The population of Augusta was 3,980 in 1830, but must have increased since then. (*American Almanac* for 1832.)

AUGUSTA, a town of Georgia, U. S., on the right bank of the river Savannah, and 123 miles N.N.W. from the town of Savannah, in 33° 28′ N. lat., and 81° 54′ W. long. Augusta is the great depôt for the cotton of Upper Georgia, of which more than 100,000 bags are annually conveyed down the river to Savannah and Charlestown. The population of Augusta was 5000 in 1827, but it has probably increased since. The houses are mostly of brick and spacious; and the streets wide, straight, and ornamented with trees. Augusta has a medical school, called the Medical College of Georgia, with six professors; a college under the direction of Methodists, with six instructors, sixty alumni, seventy-five students, and a library of 2,000 volumes; a city-hall, a theatre, an hospital, two markets, and six places of public worship. There was a great fire in April, 1829, which destroyed a considerable part of the town. Augusta is ninety miles by the road from Milledgeville, the seat of the state government of Georgia. (Stuart's *Three Years in North America;* and *American Almanac* for 1834.)

AUGU'STA HISTO'RIA, the name given to a series of Roman historians, or rather biographers, who wrote the lives of the Emperors from the accession of Hadrian to the death of Carinus, the immediate predecessor of Diocletian: these lives comprise a period of 167 years of the history of the Roman empire. They may be considered as a continuation of Suetonius's '*Twelve Cæsars*,' except that between Domitian the last in Suetonius, and Hadrian the first in the *Historia Augusta*, the reigns of Nerva and Trajan are not included in either of the two series. We know from Lampridius that four historians had written Trajan's biography, Marius Maximus, Fabius Marcellinus, Aurelius Verus, and Statilius Valens: all these lives are lost.

The writers generally included in the collections of the *Historia Augusta* are six in number; they lived under Diocletian and his successors Constantius and Constantine. They are: 1. Ælius Spartianus, who wrote the lives of Hadrian, and his colleague Ælius Verus; of Didius Julianus, of Septimius Severus, Pescennius Niger, Antoninus Caracalla, and Antoninus Geta. Spartianus dedicated the first four to the emperor Diocletian, and he states in his life of Ælius Verus, that his intention was to write the lives of all the emperors from the great dictator Julius Cæsar, and of all those who, whether they were the sons or relatives of the emperors, or were by them adopted, had received the title of Cæsars. It appears from the beginning of his *Life of Verus*, that he had written the lives of the emperors who reigned before Hadrian, which however have been lost. 2. Julius Capitolinus is the second writer in the series. He wrote the lives of Antoninus Pius, of Marcus Aurelius, and of the second Verus. These he dedicated to Diocletian. He also wrote the lives of Pertinax, of Clodius Albinus, of Opilius Maximus, of the two Maximini, of the three Gordians, and of Maximus and Balbinus. He appears to have written also others, which are lost. 3. Ælius Lampridius, to whom are attributed the lives of Commodus, Antoninus Diadumenus, Heliogabalus, and Alexander Severus: the two last are dedicated to Constantine. There are, however, considerable doubts whether some, if not the whole of these, should be attributed to Spartianus; and both G. Voss and Fabricius seem to think it not unlikely that Ælius Spartianus and Ælius Lampridius are one and the same writer. (See literary notices prefixed to the Bipont edition of the *Historia Augusta*.) 4. Vulcatius Gallicanus, a senator of Rome, of whom we have only the life of Avidius Cassius, which he dedicated to Diocletian. 5. Trebellius Pollio, we have fragments of his lives of Valerian the elder, and his son Valerian the younger; the lives of the two Gallieni; and those of the Thirty Tyrants, who assumed in various parts of the empire the power and the title of Augusti, during the distracted reigns of Valerianus and Gallienus. Among these thirty, Trebellius Pollio has reckoned two women, the famous Zenobia of Palmyra, and one Victoria. He has also written the life of Flavius Claudius, one of the ablest and best emperors of Rome, whose reign was however too short to repair the evils of the disastrous reigns which had preceded his. 6. Flavius Vopiscus of Syracuse. He lived under Constantine, and wrote the lives of Aurelian, of Tacitus, and his brother Florianus, of Probus, of the four tyrants, Firmus, Saturninus, Proculus, and Bonosus, who usurped the supreme power in various parts of the empire under Aurelian and Probus; and also of the three emperors, Carus, Numerianus, and Carinus, who immediately preceded Diocletian. Here the collection called '*Historia Augusta*' generally ends. Some editors, however, have added Eutropius and Paulus Diaconus, two writers of a very different class from the preceding. (See the Milan edition of the *Historia Augusta*, 1475.) Others have included the lives of Trajan and Nerva, translated from Dion Cassius. (See Aldine edition of the *Historia Augusta*, 1519.) But in general the *Historia Augusta* consists of the Roman writers above-mentioned. Claudius Eusthenius wrote the lives of Diocletian, Maximinus Herculeus, Constantius, and Galerius, which would have formed a sequel to the *Historia Augusta*, had they not been lost. There is a break in the *Historia Augusta* occasioned by the lives of Philippus, Decius, and Gallus, which are wanting. (Fabricius, *Bibliotheca Latina;* Voss, *de Historicis Latinis;* and the Bipont edition of the *Historia Augusta*.

AUGUSTIN, ST., Bishop of Hippo, also called AURELIUS AUGUSTINUS, one of the fathers of the church, was born, as he himself informs us (*Epist.* 227), at Tagasta, a small town of Africa, in the inland part of Numidia, according to the best authorities, on November 13th, A.D. 354. (*Act. Sanct.* Augusti, tom. vi. pp. 217, 353; Tillemont, *Mem.* xiii. 2.) His father's name was Patricius, and his mother Monica was a woman distinguished for her piety. At the beginning of his treatise *De Beatâ Vitâ*, Augustin speaks of his son named Adeodatus, and of his brother Navigius; and in his 109th epistle, of a sister who died an abbess. He prosecuted his studies in his earlier years, first at Tagasta, then at Madaura, and latterly at Carthage, where his morals became corrupted, and his son Adeodatus was born, A.D. 371, the fruit of a criminal connexion. The perusal of Cicero's *Hortensius*, about the year 373, first detached him from his immoral habits; and, about the same time, he became not only a proselyte to the sect of the Manichæans, but, for a short period, a zealous and able defender of their opinions. Chalmers, from Baillet, says, one thing gave him uneasiness in the perusal of Cicero's work, and that was his not finding the name of Jesus, which had been familiar to him from his infancy, in the writings of the celebrated Roman. He resolved therefore to read the Holy Scriptures; but the pride of his heart, and his incapacity to taste their simple beauties, made him still give the preference to Cicero. In the mean time he acquired fame as a rhetorician, and taught eloquence successively at Tagasta, Carthage, Rome, and Milan. At Rome he left the Manichæans, and joined, for a short time, as he himself informs us, the sect of the Academics. (*De Beatâ Vitâ*, tom. i. 212.) He arrived at Milan, A.D. 384, where St. Ambrose was at that time bishop; whose sermons, added to the tears and entreaties of his mother Monica, about A.D. 386, effected Augustin's entire conversion. He was accordingly baptized by St. Ambrose in the early part of the year 387, and the thirty-second year of his age: Baronius says, in 388, having, previous to his baptism, written his work *De Immortalitate Animæ*. Soon after this, Monica, his mother died at Ostia Tiberina. (See *Confess.* lib. ix. c. 10.) He now renounced his rhetorical pursuits, and devoted himself to the study of the Gospel, going first to Rome, but afterwards settling for near three years at Tagasta, where he wrote several of his works.

Being at Hippo, Valerius, then bishop of that diocese, ordained him a priest early in 391; and at a council held there in 393, he displayed such learning and eloquence in defence of the faith, that the bishops who composed it were

unanimously of opinion that he should be chosen one of their number. In 395 he became coadjutor to Valerius, and in 396 succeeded him in the sole rule of the bishopric of Hippo. He appears to have established about this time a kind of clerical community within his episcopal residence; and was still active in his opposition, not only to the heresies of the Manichæans, but to those of the Donatists and Pelagians. His great work, *De Civitate Dei*, is believed to have been begun A.D. 413. In 418, after the general council held at Carthage, he produced his two works against the Pelagians, *De Gratiâ Christi*, and *De Peccato Originali*, from the former of which he received the appellation of 'the Doctor of Grace.' His labours were continued both personally and by his pen to the close of life. His last work was his *Confessions*.

In the latter part of his career, however, he had other enemies to contend with besides those of the church. The Vandals had entirely overrun Africa, and passed even into Spain, and Augustin had now for his opponents the enemies of the empire. Carthage and Hippo made resistance for a considerable time; and St. Augustin, though pressed by his associates, refused to quit his flock and escape by flight. Still he saw the imminent danger to which Hippo was exposed; and dreading that it would fall into the hands of the enemy, prayed to God that before that calamity happened he might be taken away. His prayer, it would appear, was answered, as he died during the third month of the siege, of fever, August 28th, A.D. 430, at the age of 76. (Victor Vitensis Episc. *Hist. Persecut. Vandalicæ*, 8vo. Paris, 1694, p. 113.) The Vandals, who took Hippo the year following, showed respect to his library, his works, and his body. Victor Vitensis (*Hist. Persec.* ut suprà, p. 6) says his library contained at that time two hundred and thirty-two separate books, or treatises, on theological subjects, besides an exposition of the Psalter and the Gospels, and an innumerable quantity of homilies and epistles. The Catholic bishops of Africa carried his body to the island of Sardinia, the place to which they were driven by Thrasamond, King of the Vandals, A.D. 500; and Luitprand, King of Lombardy, caused it to be conveyed, about or soon after A.D. 721, from Sardinia to Pavia (Boronii *Annales*, fol. Lucæ, 1738-56, tom. xii. p. 320.) An account of the supposed discovery of his relics, at a later time, will be found in Montfaucon's *Diarium Italicum*, 4to. Paris, 1792, pp. 26, 27; see also Muratori, *Antiq. Ital. Medii Ævi*, tom. v. fol. Milan, 1741, dissert. viii. p. 9.

St. Augustin's works, as the reader will have gathered from the preceding account of him, were numerous, and have been printed in a collected form repeatedly: at Paris, in 10 vols. fol. 1532; by Erasmus, from Frobenius's press, 10 vols. fol. 1540-3; by the divines of Louvain, 10 tom. fol. Lugd. 1586; and by the Benedictines of the congregation of St. Maur, 10 vols. fol. Paris, 1679-1700; 12 vols. fol. Paris, 1688-1703; and 12 vols. fol. Antw. 1700-1703.

The reader who is desirous to become acquainted with the detached titles of St. Augustin's works, may consult the *Indiculus Scriptorum omnium*, by his friend and colleague Possidius, printed in the *Acta Sanctorum* of the Bollandists for the month of August, tom. vi. pp. 441-460, with annotations; and the same work, pp. 353-357, for the progressive years of the production of the greater part. Some of St. Augustin's works are among the earliest specimens of typography known in our libraries. The *Liber de Arte Predicandi* was printed by Fust at Mentz, in folio, before 1466, and another edition appeared in that very year from the press of Mentelin. The first edition of the treatise *De Civitate Dei* was printed by Sweynheim and Pannartz, in the monastery of Subiaco, fol. 1467; and the treatises *De Vitâ Christianâ*, and *De Singularitate Clericorum*, in the same year, by Olric Zell, at Hanau, in 4to.

The character of Augustin, says Chalmers, has been depreciated by some modern writers, and ought undoubtedly to be considered with a reference to the times in which he lived, and the state of learning and religion. There is neither wisdom nor candour, however, in collecting and publishing the frailties of his early years, nor in denying that he may justly be ranked among those illustrious characters in a dark age who preserved and elucidated many of those doctrines which are held sacred in days of more light and knowledge.

The following is the character of him which has been drawn by Mosheim. 'The fame of Augustin, Bishop of Hippo, filled the whole Christian world, and not without reason, as a variety of great and shining qualities were united in the character of that illustrious man. A sublime genius, an uninterrupted and zealous pursuit of truth, an indefatigable application, an invincible patience, a sincere piety, and a subtle and lively wit, conspired to establish his fame upon the most lasting foundations. It is, however, certain that the accuracy and solidity of his judgment were by no means proportionable to the eminent talents now mentioned; and that, upon many occasions, he was more guided by the violent impulse of a warm imagination than by the cool dictates of reason and prudence. Hence that ambiguity which appears in his writings, and which has sometimes rendered the most attentive readers uncertain with respect to his real sentiments; and hence also the just complaints which many have made of the contradictions that are so frequent in his works, and of the levity and precipitation with which he set himself to write upon a variety of subjects, before he had examined them with a sufficient degree of attention and diligence.'

A *Life of St. Augustin*, the first part written by himself, in the first ten books of his *Confessions*, was published in English, 8vo. Lond. 1660; but a far more elaborate life, in Latin, is appended to the Benedictine editions of his works; and an account of his life and controversies fills the 13th volume of the *Memoires pour servir à l'Histoire Ecclesiastique*, by M. Lenaine Tillemont, 4to. Paris, 1702. Many valuable remarks upon St. Augustin's writings, as they relate to his connexion with the Manichæans, will be found in Lardner's *Credibility of the Gospel History*, part ii. vol. vi. pp 58, 59, and again part ii. vol. x. pp. 198-303, where the value of Augustin's works may be estimated by the testimonies illustrating the canon of Scripture which Lardner has drawn from them. The more antient lives, however, from which the chief facts of the preceding account have been derived, will be found in the 6th volume for the month of August of the *Acta Sanctorum*: 1. *De S. Aurelio Augustino Commentarius prævius*, pp. 213-306; 2. *Acta Priora, auctore ipso Augustino, excerpta ex novem prioribus libris Confessionum ejus, quas anno* 1650 *Balthasar Moretus Antverpiæ edidit*, pp. 387-426; 3. *Acta alia, sive secunda Vitæ Pars, præsertim ab anno trigesimo tertio ætatis usque ad obitum, auctore S. Possidio, sancti doctoris discipulo, ejusque per annos fere quadraginta contubernali: Ex edit. Romana, anni* 1731, *cum vetusto MS. collat.* Another antient life of St. Augustin has been more recently edited:—*Vita D. Aur. Augustini Episcopi Hipponensis, auctore incerto, ex antiquo codice nunc primum edidit* Andr. Guil. Cramer, 8vo. Kiliæ in Librariâ Universitatis, 1832.

AUGUSTIN (ST), CANONS OF THE ORDER OF, usually called AUSTIN CANONS. Regular Canons, says Bishop Tanner (Pref. to *Notit. Monast.*), were such as lived under some rule: they were a less strict sort of religious than the monks, but lived together under one roof, had a common dormitory and refectory, and were obliged to observe the statutes of their order.

The chief rule for these canons was that of St. Augustin, who was made Bishop of Hippo, A.D. 395. But they were little known till the tenth or eleventh century, were not brought into England till after the Conquest, and appear not to have obtained the name of Augustin or Austin Canons till some years after. (Bingham, *Antiq. of the Christ. Church*, b. vii. c. 2. s. 9.)

Bale (*Script.* cent. xiii. 4) and Sir Robert Atkyns (*Antiq. of Glouc.* p. 1) say, that these canons were brought into England by St. Birinus in the beginning of the seventh century; A.D. 630 or 640, as Fuller states in his *Church History* (b. vi. p. 268); but those were certainly secular canons whom he placed at Dorchester in Oxfordshire; and all other historians agree that we had no regular canons here till the eleventh, or probably till the twelfth century. For though they differ about the place of their first settlement, yet the general opinion is, that they came in after King Henry I. began his reign. Jos. Pamphilus, according to Fuller (*Ch. Hist.* ut supr.), says they were seated in London, A.D. 1059; but this is not believed. Somner says that St. Gregory's in Canterbury, which was built by archbishop Lanfranc A.D. 1084, was their first house (*Antiq. Canterb.* p. 89); but Leland's saying (*Collectan.* vol. i. p. 89) that Archbishop Lanfranc placed secular canons at St. Gregory's, and that Archbishop Corboyl changed them into regulars, makes the authority of that judicious antiquary in this case doubtful. Reyner says (*Apostol. Benedict.* tr. i. p. 157) that they were first brought into England by Athelwulphus or Adulphus, confessor to King Henry I.

and had their first house at Nostell in Yorkshire; but they seem not to have been settled there till Thurstan was archbishop of York, and that was not till 1114. Thurstan was elected in 1114, but not consecrated till 1119. (Willis's *Cathedrals*, vol. i. p. 34.) Stowe says (*Surv. of London*, p. 930) that Norman was the first canon regular in England, and that these religious were first seated at the Holy Trinity, or Christ Church within Aldgate, London, A.D. 1108, but that house was not built till R. Beaumeis was bishop of London; whereas the house of these canons at Colchester was founded before the death of Bishop Maurice his predecessor, which happened Sept. 26, 1107. (Godwin *de Præsul*, p. 175; Newc. *Rep. Eccl.* vol. i. p. 10.) And therefore Bishop Tanner thinks that John Rosse (*Mon. Angl.* new edit. vol. vi. p. 602) and Pope Paschal II. (*Ibid.* p. 106) are right in placing them first at Colchester, though it could not be in Rosse's year, 1109, but was rather A.D. 1105, in which Fuller (*Ch. Hist.* b. vi. p. 268) places the coming of these canons into England.

Stevens tells us, in his Continuation of Dugdale (vol. ii. p. 65), that though there were regular canons who embraced the rule of St. Austin, taken from his 109th epistle, in the eleventh century (as particularly at the Abbey of St. Denis, at Rheims, about A.D. 1067), yet the regular canons did not make solemn vows till the twelfth century; and did not, in general, take the name of 'regular canons of St. Austin' till Pope Innocent II. ordained, in the Lateran Council, A.D. 1139, that all regular canons should submit to that rule of St. Austin in his 109th epistle. So that these regular canons certainly fall short of the time of their pretended founder; and therefore when black or regular canons are mentioned before A.D. 1105, the reader must thereby understand secular canons: for it was usual in those days to call the secular canons of cathedral and collegiate churches 'canonici regulares,' to distinguish them from the common parochial clergy, though probably many of those societies might become Austin canons afterwards.

Their *habit* was a long black cassock, with a white rochet over it, and over that a black cloak and hood. The monks were always shaved, but these canons wore beards, and caps on their heads.

Tanner says he found above 175 houses of these canons and canonesses in England and Wales.

But besides the common and general sort of these canons there were also the following particular sorts:—1. Such as observed St. Austin's rule according to the regulations of St. Nicholas of Arroasia (see Stevens's *Contin. of Monast.* vol. ii. p. 149, from *Hist. des Ordr. Mon.* tom. ii. p. 106; *Acta Sanctorum*, Jan. 13, and *Reyn.* i. p. 159), as those of Harewold, in Bedfordshire; Nutley, or Crendon, in Buckinghamshire; Hertland, in Devonshire; Brunne, in Lincolnshire; and Lilleshull, in Shropshire: 2. Some of the rule of St. Austin and the order of St. Victor (among the Harleian Manuscripts, No. 3392 is a MS. of the fifteenth century, in Latin and Italian, containing the rule of St. Austin, with the exposition of Hugh de St. Victor), as at Keynsham and Worspring, in Somersetshire, and Wormesley, in Herefordshire. Fuller (*Ch. Hist.* b. vi. p. 325) says St. Austin's, Bristol, was of the order of St. Victor: 3. Of the order of St. Austin, and the institution of St. Mary of Meretune, as at Buckenham, in Norfolk: 4. Premonstratensians, or canons who lived according to the rule of St. Austin, reformed by St. Norbert, Archbishop of Magdeburg, who set up this regulation about A.D. 1120, at Præmonstratum, in the diocese of Laon in Picardy, a place so-called because *pointed out*, as it was said, by the blessed Virgin to be the head of this reformed order. (*Mon Angl.* new edit. tom. vi. p. 855; Weever, *Fun. Mon.* p. 139; Collier, *Eccl. Hist.* i. p. 337.) They were brought into England after A.D. 1140. It is reckoned that in England this order had about thirty-five houses.

The above particulars have been in part taken from Bishop Tanner's Preface to his *Notitia Monastica*, and the Introductory History of the Augustin Order in the new edition of *Dugdale's Monasticon*, vol. vi. pp. 37-49. For more extended information, the *Histoire des Ordres Monastiques*, quoted by Stevens, may be consulted; and, for the minutiæ of the customs of the order in England, Fosbrooke's *British Monachism*. See also Hospinian *de Orig. et Progr. Monachatus*, Tig. 1588, fol. 71. b.

One copy of the rule of the Augustin order has been already referred to; other copies will be found among the Harleian Manuscripts in the British Museum, Numbers 2939, 3995, and 4053. Wilkins, in his *Concilia*, vol. ii. p. 629, and Spelman, *Concil.* vol. ii. p. 571, have given the Constitutions of Pope Boniface XII. for the reformation of this Order, A.D. 1339; and the Cottonian Manuscript, Vespasian D. I. contains, 1. The proceedings at various general and provincial chapters of the Order, held within the province of Canterbury from A.D. 1325 to A.D. 1404, fol. 41, b.; 2. The details of the great chapter held at Leicester, A.D. 1518, fol. 63. This last chapter was held preparatory to the promulgation of the reformed rules of the Order for the houses in England, set forth by Cardinal Wolsey in the following year. The cardinal's regulations are preserved in the Cottonian Manuscript, Vesp. F. IX. 'Ordinationes et Statuta per Thomam Wolsey, titulo S. Ceciliæ Cardinalem, per singula Monasteria Canonicorum Regularium S. Augustini observanda: composita xxij° Martii, A°. Dom. MDXIX. et Regis Henrici Octavi xj.'

AUGUSTINE, ST., first archbishop of Canterbury, also by contraction called St. AUSTIN, was originally a monk in the convent of St. Andrew at Rome, where he was educated under Gregory, afterwards Pope Gregory I. and St. Gregory. He is usually called the Apostle of the English, because he was sent with about forty other monks, Italians and Gauls, to convert the Anglo-Saxons to the Christian religion. This mission was undertaken in the year 596 (Bede, *Eccl. Hist.* edit. Smith, l. i. c. 23), under St. Gregory's immediate direction, who had himself projected and undertaken the conversion of the Anglo-Saxons, previous to his advancement to the Popedom. Augustine and his company having proceeded a little way on their mission, began to dislike their employment, and wished to return rather than take so long a journey to a country, with the manners and language of which they were unacquainted. This resolution being taken, Augustine was himself despatched back to Rome to obtain the Pope's leave for their return; but he came again with a letter of exhortation to the missionaries, which is still extant (see Bede, edit. Smith, Append. No. vi. p. 674, *Acta Sanctorum*, Mensis Mali, tom. vi. p. 370), by which they were encouraged to prosecute their undertaking. At the same time, Gregory wrote to Etherius, archbishop of Arles (Bede, l. i. c. 24; Greg. *Epist.* l. v. ep. 52), and to the King and Queen of the Franks, to assist the missionaries with every thing needful in the expedition; by means of which recommendations they were every where entertained with respect, and even furnished with interpreters. (Bede, l. i. c. 25; compare also Godwin, *de Præsul. Angl.* edit. 1616, p. 43.)

Augustine and his companions having passed through France, embarked for Britain, and were suffered to land in the isle of Thanet, whence they sent messengers to Ethelbert, king of Kent, to inform him that they were come from Rome, and had brought with them the best tidings in the world,—the endless enjoyment of eternal life to those who received them. The territories of Ethelbert were probably selected for the first efforts of these missionaries, because his queen Bertha, daughter of Cherebert, king of the Parisii (*Acta Sanctorum*, ut supr. p. 385), was a Christian; and by the articles of her marriage (as early as A.D. 570) had the free exercise of her religion allowed her. She had also a French bishop of the name of Luidhard in her suite as chaplain, and had the use of the small church of St. Martin without the walls of Canterbury.

Ethelbert ordered them, at first, to continue in the isle of Thanet; but, some time after, came to them and invited them to an audience in the open air. (Bede, l. i. c. 25.) He refused at the outset to abandon the gods of his fathers for a new and uncertain worship; but as their intention was benevolent, he allowed them to preach without molestation, and assigned them a residence in Canterbury, then called Dorobernia, which they entered in procession, singing hymns. Thorn (*Script.* x. col. 1759) says they took up their residence in a street which has been since called Stable-gate, in the parish of St. Alphage.

These missionaries, who now applied themselves to the strict severity of monastic life, preached jointly in the church of St. Martin with the French Christians of Queen Bertha's suite. They were limited to this spot till the conversion and baptism of the King himself, after which they had licence to preach in any part of his dominions (Bede, l. i. c. 26); which Bede assures us (c. 25) extended (probably over tributary kingdoms) as far as the river Humber.

In 597, Augustine, by direction of Pope Gregory, went over to Arles in France, where he was consecrated arch-

bishop, and metropolitan of the English nation, by the archbishop of that place; after which, returning into Britain, he sent Lawrence the presbyter, and Peter the monk, to Rome, to acquaint the Pope with the success of his mission, and to desire his solution of certain questions, which Bede (l. i. c. 27) has reported at length in the form of interrogatories and answers. Some of these points savour undoubtedly of the suspicious scruples of monastic austerity; but others lead to information respecting the early constitution of the Church. To his inquiries concerning the maintenance of the clergy, Gregory answered that the donations made to the church were, by the custom of the Roman see, divided into four portions; one for the bishop and his family to support hospitality, a second to the clergy, a third to the poor, and a fourth to the reparation of churches. As the pastors were all monks they were to live in common; but such as chose to marry were to be maintained by the monastery. With respect to diversities of customs and liturgies, Gregory's answer was truly liberal, implying that Augustine was not bound to follow the precedent of Rome, but might select whatever parts or rules appeared the most eligible or best adapted to promote the piety of the infant church of England, and might compose them into a system for its use. Gregory also, at Augustine's request, sent over more missionaries, and directed him to constitute a bishop at York, who might have other subordinate bishops; yet in such a manner, that Augustine of Canterbury should be metropolitan of all England. He sent over also a valuable present of books, vestments, sacred utensils, and holy relics. He advised Augustine not to destroy the heathen temples, but only to remove the images of their gods; to wash the walls with holy water, to erect altars, deposit relics in them, and so gradually convert them into Christian churches, not only to save the expense of building new ones, but that the people might be more easily prevailed upon to frequent those places of worship to which they had been accustomed. He directed him, further, to accommodate the ceremonies of the Christian worship, as much as possible, to those of the heathen, that the people might not be too much startled at the change; and, in particular, advised him to allow the Christian converts, on certain festivals, to kill and eat a great number of oxen, to the glory of God, as they had formerly done to the honour of the devil. It is quite unnecessary to offer any remark on this mixture of pious zeal and worldly policy. Gregory, moreover, cautioned Augustine not to be puffed up with the miracles which he was enabled to work in confirmation of his ministry. (Compare Bede, l. i. c. 29, 31.)

Augustine having fixed his see at Canterbury, dedicated a church which had been built in earlier times by some Roman Christians to the honour of our Saviour; and King Ethelbert founded an abbey, dedicated to St. Peter and St. Paul, since called St. Augustine's. (Ibid. c. 33.)

Being thus supported, Augustine now made an attempt to establish a uniformity of discipline and customs in the island; and, as a necessary step, to gain over the British, that is, the Welsh bishops, to his opinion. For this purpose a conference was held in Worcestershire, at a place since called Augustine's Oak, where the archbishop endeavoured to persuade the British prelates to make one communion, and assist in preaching to the unconverted Saxons. But neither this nor a second conference was successful; and Augustine is said to have threatened the Britons with a terrible calamity, as a punishment of their disobedience, which accordingly fell upon them in the shape of war (see Bede, l. ii. c. 2), A.D. 613, after Augustine's death, when Ethelfrid, king of Northumberland, marched with an army to Caerleon, and when near twelve hundred monks of Bangor were put to the sword.

In the year 604, Augustine consecrated two of his companions, Mellitus and Justus, the former to the see of London, the latter to that of Rochester (ibid. c. 3). In the same year he died at Canterbury, May 26th (Wharton, *Angl. Sacra*, i. 91), and was buried in the churchyard of the monastery which goes by his name; the cathedral being not then finished. But after the consecration of that church his body was taken up and deposited in the north porch, where it lay till A.D. 1091, when it was removed and placed in the church by Wido, Abbot of Canterbury (Thorn, *Script.* x. col. 1793).

The inscription on St. Augustine's tomb, given by Bede (l. ii. c. 3), is generally thought to be spurious. That which Abbot Wido placed upon his tomb was—

Inclitus Anglorum presul, pius, et decus altum
Hic AUGUSTINUS requiescit corpore Sanctus.

The observation of the festival of St. Augustine was first enjoined in a Synod held under Cuthbert, archbishop of Canterbury (Gervase, *Act. Pontif. Cantuar.* Script. x. col. 1641), and afterwards by the Pope's bull in the reign of Edward III. (Thorn, col. 2119.)

Gervase of Canterbury (ut supr. col. 1632) informs us, that Augustine was so successful in his labours for the propagation of Christianity, that it was said he baptized 10,000 persons of both sexes in one day in the river Swale. Bede (l. ii. c. 14) ascribes this labour to Paulinus, archbishop of York, with whom Gervase appears to have confounded St. Austin.

(See Joan. Diacon. *Vita S. Greg.*, Vita S. Augustini, auctore Gocelino Monacho; *Acta Sanctorum*, Mensis Maii, tom. vi. p. 378; *Biogr. Britan.* vol. i. p. 361; Henry's *Hist. Brit.* 4to edit. vol. ii. p. 136; Lingard, 4to, vol. i. p. 83.)

AUGUSTINE, ST. a town and sea-port of East Florida, in the United States, situated on a bay of the Atlantic, two miles within the bar, which is very shallow, 310 miles S. of Charlestown, and 30 miles S. of the mouth of the St. John's river; 29° 48′ N. lat., and 81° 35′ W. long. The town is oblong, and consists of four principal streets. The houses are built of stones formed by the accretion of shells from the island of Anastasia, near the town. It has a fort with thirty-six guns on it. In 1821, when Florida was ceded by Spain to the United States, St. Augustine reckoned 2500 inhabitants; but it has been since in a state of decay. The country around produces very fine oranges, and good crops of Indian corn, but it is swampy and unhealthy. (*Encyclopædia Americana;* and Bartram's *East Florida.*)

AUGUSTOVO, the most northern voyvodeship (a term derived from the Sclavonian word 'voy,' or 'voi,' troops, and 'vodit,' to lead) of Russian Poland. On the partition of Poland it was merged in Eastern Prussia; in the time of Napoleon it became part of the department of Lomza in the duchy of Warsaw; and upon its transfer to Russia, in 1815, it was formed into a separate voyvodeship or captaincy. The line of its northern and eastern limits, which separate it from the Russian provinces of Vilna and Grodno, follows the course of the Niemen, Bobr, and Narew; in the south-east it joins the Russian province of Bialystock, and on the south, the voyvodeship of Plock; on the west it is wholly bounded by Eastern Prussia. The length of this voyvodeship is 260 versts (about 170 miles), and it is 100 versts (about 65 miles) in its greatest breadth. Its area is about 7000 geographical square miles; it lies between the 52d and 56th degrees of north latitude, is divided into five circles and 155 parishes, and contains 47 towns, the chief of which are Suwalky, the capital, Augustovo (from which its name is derived), Stabin, Prenn, Novogrod, Lomza, Zambroff, and Staropol, 4170 villages, and about 529,000 inhabitants. It abounds in small rivers, lakes, and morasses, some of the latter of which, namely, the Bobr, Netta, and Lykbrüch, produce considerable quantities of wild hops, which form an article of export to Königsberg. It is likewise rich in forests, those which skirt the Memel being full of linden-trees, whence the celebrated 'Linden-honey.' The northern districts of Augustovo form an extensive plain, and the soil being fertile and well cultivated produces a fine description of wheat; excellent rye is also grown in the southern districts, which are watered by the Narew. Of the whole surface of the voyvodeship about three-tenths consist of arable land, and four-tenths are occupied by woods and forests: the quantity of unproductive soil, after deducting about one-tenth for the area employed for gardens, pastures, highways, and buildings, does not exceed one-fifth of that surface.

The town of Augustovo is on marshy ground at the southern extremity of lake Stabrina, out of which the Netta flows, and at a distance of 165 versts (110 miles) N.E. of Warsaw. It was founded by Sigismund Augustus, king of Poland, in the year 1560; it is fortified, contains two churches, an hospital, and about 3000 inhabitants, and has large fairs for horses and cattle, as well as a depôt for salt. A canal with seventeen sluices is in process of being excavated near the town for the purpose of uniting the Vistula, by means of the Narew and Bug, with the Niemen: a second canal will form a junction between the Niemen and the Dubissa, and establish a line of communication with the mouth of the Düna in the Baltic. Augustovo is in 53° 40′ N. lat., and 22° 58′ E. long.

AUGUSTULUS, the last emperor of the western portion of the falling empire of Rome, was the son of Orestes, a Pannonian of birth and wealth, who stood high in the favour of Attila, filled the office of secretary to him, and, on his death, entering the Roman service, rose, step by step, to its highest dignities by favour of the Emperor Julius Nepos. He rewarded his patron by stirring to mutiny the barbarian confederates or troops in the pay of Rome. Nepos fled, and Orestes, instead of seizing on the vacant throne for himself, established his son upon it. This youth, who bore the lofty name of Romulus Augustus, possessed no qualities to distinguish him except personal beauty; and his character is aptly expressed by the diminutive title Augustulus, under which he is universally designated. Within a year Orestes fell, as he had risen, by the army. He offended the licentious barbarians by refusing to distribute among them a third part of the lands of Italy; and a less scrupulous leader appeared in the celebrated Odoacer, the first barbarian king of Italy. Orestes was besieged in Pavia, taken, and put to death; the helpless and inexperienced Augustulus yielded at once, and on his abdication was kindly treated by Odoacer, who allotted for his abode the celebrated villa of Lucullus, on the promontory of Misenum, near Naples, with a pension of 6000 pieces of gold. The date commonly assigned to this extinction of the western empire is 476, but Gibbon appears to sanction 479. (Jornandes, *Rer. Get.*; Gibbon, c. xxxvi.)

AUGUSTUS is properly only a title of honour which was conferred upon the first emperor of Rome, and afterwards adopted by his successors. The meaning of the word seems to have been *sacred*, as it appears to be derived from *Augur*, the priest who gave the sanction of the gods to the persons of the Roman magistrates (see AUGUR)—the analogy between the two words being precisely the same as that between *robur* (strength) and *robustus* (strong). The Greek writers interpreted the word by *sebastos* (adorable), from *sebas*, adoration. (See the inscription on the coin of ANTIOCH.) But though the title was common to the emperors of Rome, it is in history generally limited to the first who held it, and is almost looked upon as his proper name. For this reason it will be convenient to give an account of that emperor under the present head, rather than under the names Octavius, Julius, or Cæsar.

AUGUSTUS. This extraordinary man was the son of C. Octavius, and Atia. Atia was the daughter of M. Atius Balbus and Julia, sister of the celebrated C. Julius Cæsar, who was consequently the great uncle of Augustus. The Atii were particularly connected with the town of Aricia and had given many senators to Rome, so that the antiquity of the family afforded a pretext to Virgil for tracing them from Atys, the friend of young Ascanius (*Æn.* v. 568). The Octavii, on the other side, were a wealthy family of Velitræ; but the first who obtained admission into the Roman senate, if we reject the inventions of flattery, was the father of the emperor. Augustus, or, as we ought at present to call him, Octavius, was born at Velitræ on the 22nd of September, B.C. 63, in the consulship of Cicero. In B.C. 60, his father was appointed as prætor to succeed C. Antonius in the government of Macedonia. On his route thither he was further directed to subdue some insurgent slaves, the remnant of the bands of Spartacus and Catiline, who had made themselves masters of the district around Thurium, and from his success in this expedition, he gave to his infant son the name of Thurinus. In Macedonia, Octavius conducted himself in a manner which was most favourably contrasted with that of his predecessor, and Cicero in his letters pointed him out as a pattern to his brother Quintus, who, at the same time held the pro-consulship of Asia (Cic. *ad Att.* i. 17; *ad Quint.* i. 1 and 2). Immediately after his return from his province Octavius died, leaving behind him Octavia the elder by his first wife Ancharia, and Octavia the younger, together with the son of whom we are treating, then only four years of age, by his second wife Atia, who afterwards married L. Marcius Philippus, the consul of B.C. 56. Young Octavius, at the age of twelve, pronounced a funeral oration on the decease of his grandmother Julia. (Quintil. xii. 6.) In his sixteenth year he received the toga virilis, and already in the year 46 we find him the object of Cæsar's regard, who, in his African triumph, allowed him to share the military rewards given to his army, though he had not been present in the war. In the following year he was present with his great-uncle at the defeat of the sons of Pompey near Munda; after which he was sent to Apollonia, on the Adriatic, that



[Brit. Mus. Gold. Double the actual diameter.]

he might employ the winter in study under Apollodorus of Pergamum, and at the same time be ready to accompany the dictator on his projected expeditions against Dacia and Parthia. Besides these marks of esteem, he had already, through the interest of Cæsar, been appointed pontifex (Vell. ii. 59), and had received the honour of patrician rank under the Cassian law. However, he had scarcely been at Apollonia six months when he heard of the murder of his benefactor, and this was soon followed by the information that he had been appointed his heir and adopted into the Julian family. He was only eighteen years of age, and his step-father, in his letters from Rome, strongly recommended



[Obverse.]



[Reverse.]

[Brit. Mus. Gold. Double the actual diameter.]

him to keep away from public affairs; yet, after a little hesitation, he crossed over to Italy with his friend Vipsanius Agrippa, and was most favourably received by the legions at Brundisium. On the 18th of April he had already reached Naples (Cic. *ad Att.* xiv. 10), and two or three days after, Cicero saw him at the house of his step-father. Antony at this period was beginning to lay aside the hesitation which marked his conduct in the first surprise of the ides of March, and but for the arrival of young Octavius, the two parties would probably soon have brought the dispute to some decided issue. But the appearance of Octavius on the scene was the commencement of a series of intrigues which even the historian has found it difficult to unravel. The connexion of Octavius with his murdered benefactor might naturally have led to an alliance with Antony, while, on the other hand, the marriage of his mother with Philippus brought him at once into contact with the chiefs of the opposite party. In this difficult situation a boy of eighteen played his part with an art which baffled the prudence of the oldest statesmen of Rome. Already at Naples, he persuaded Cicero that he was altogether devoted to his counsels, and yet by assuming the dreaded name of

Cæsar he threw out a hint which was well understood by the veterans and the people to whom that name was dear. No sooner had he arrived at Rome than he appeared before C. Antonius the prætor, and formally accepted the dangerous inheritance of the dictator's name and property, so that henceforward he was called C. Julius Cæsar Octavianus—the last epithet being added to mark his previous connexion with the Octavii. Having thus traced him from his birth into public life, we must leave to the historian the task of recording the annals of the world during the next fifty-eight years, in which the name of Cæsar or Augustus connects itself with every event of importance.

His private life may be briefly considered. A daughter of P. Servilius Isauricus had been betrothed to him, but the marriage was not completed, when the troops, after the war of Mutina, and the reconciliation which soon followed between him and Antony (B.C. 43), called upon him to marry Claudia, or Clodia, the daughter of the notorious P. Clodius and Fulvia, who, by the second marriage of Fulvia, had become the step-daughter of Antony. This marriage, however, was only nominal, and Claudia, still a virgin, was formally divorced on the occasion of the Perusian war (B.C. 41). His marriage with Scribonia soon after was again dictated by motives of public expediency, not of affection. This lady, already twice a widow, was the sister of L. Scribonius Libo, whose daughter was married to Sextus Pompeius, with whom Cæsar was then on the point of reconciliation. The result of this marriage was the too-celebrated Julia, born B.C. 39. But a marriage thus contracted was as readily dissolved at the re-commencement of the war with young Pompey in 38; the more so as Cæsar had begun to feel an attachment for Livia Drusilla, the daughter of L. Livius Drusus Clodianus, who slew himself after the battle of Pharsalia, and who, by birth, as his name implies, was a member of the proud Claudian family. Livia at this time was already married to Tib. Claudius Nero, to whom she had borne one son, of the same name as his father, afterwards the Emperor Tiberius, and was actually pregnant with another. These were no obstacles to Cæsar, who prevailed on her husband to consent to a divorce; and in three months after the marriage Livia gave birth to Drusus. In B.C. 27, four years after the battle of Actium, Cæsar received from the flattery of the senate the title of Augustus; by which name he is generally known in history. In the mean time his hopes of a son by Livia were disappointed. She was once pregnant, but did not give birth to a living child. Under these circumstances, Augustus directed all his thoughts to M. Marcellus, son of his sister, and gave his own daughter Julia in marriage to him; but the death of Marcellus, in his twentieth year (B.C. 23), defeated his wishes, and the hand of Julia was transferred to his friend Vipsanius Agrippa. This marriage was fruitful; and the security of the imperial house appeared to be established by the birth of three sons, Caius, Lucius, and Agrippa, and two daughters, Julia and Agrippina. Caius and Lucius were adopted by the emperor, B.C. 17, almost from their birth. The death of Agrippa (B.C. 12) left Julia a widow for the second time; and her father, strictly obeying the laws of marriage which he had himself enacted, lost no time in contracting a third marriage between Julia and his step-son Tiberius (B.C. 11). This same year Augustus lost his sister Octavia, the mother of Marcellus. The latter part of the life of Augustus was crowded with melancholy events. The detection of the criminal conduct of his daughter Julia, and her consequent banishment (B.C. 2), the death of her son Lucius at Massilia (A.D. 2), and of Caius in Lycia, only eighteen months after his brother, were blows from which he could scarcely recover. The loss of his adopted sons he endeavoured to repair by the adoption of his grandson Agrippa Postumus and his step-son Tiberius (A.D. 4); but the degraded character of the former, and perhaps the arts of Livia, soon led to his disgrace and exile; and thus Tiberius was evidently destined to succeed the aged emperor. In B.C. 8, his grand-daughter Julia, who had been married to L. Æmilius Paulus, the son of the censor, was discovered to have closely imitated the conduct of her mother, and she met a similar fate, being banished to an island on the coast of Apulia (Tac. iv. 71). Thus, of the five children of Julia by Agrippa, Agrippina alone, who was married to Germanicus, son of Drusus, and grandson of Livia, remained to honour the imperial house. In the year A.D. 14, Augustus, now in his seventy-sixth year, purposed to accompany his adopted son Tiberius, on his route to Illyricum, as far as Beneventum. He proceeded by land to Astura, and thence coasting along the Campanian shore he landed on the island of Capreæ. After spending a few days here in idle amusement, he crossed over to Naples, and thence proceeded to Beneventum. In his passage from Astura to Capreæ he had been attacked by diarrhœa, and had omitted to pay that attention to it which his age demanded. On his return from Beneventum the disease rapidly gained ground, and at Nola he breathed his last, on the 19th of August, in the very room in which his father had died. Tiberius was immediately recalled; but it is doubtful whether he ever again saw the emperor alive. It was the policy of Livia to conceal the death of Augustus until she had made the requisite preparations for securing the succession to her son. The remains of the emperor were conveyed to Rome with all possible honour, and placed in the Mausoleum in the Campus Martius.

Augustus was of moderate stature; but his person throughout life was particularly graceful, though he took but little pains to adorn it. His eyes were remarkable for their magnitude and brilliancy, and he was pleased with the flattery of those who ascribed to them something of a divine irradiation. His successful encouragement of literature, especially in the persons of Virgil and Horace, has procured the name of the Augustan age for the brilliant period in which he lived. He was also himself an author. Plutarch (*Anton.* 22) and Appian (*Bell. Civ.* iv. 110) availed themselves of commentaries written by the emperor; and Suetonius (85), most probably alluding to the same work, mentions an autobiography in thirteen books extending down to the Cantabrian war. He wrote also a poem in verse called *Sicilia*, some epigrams, and a tragedy called *Ajax*; the last did not satisfy him, and was never published. The fragments of the emperor's works were collected by J. Rutgers, and published by J. A. Fabricius, 1724. 4to.

(Cicero's *Letters*; Horace; Virgil; Ovid; the *Monumentum Ancyranum*; Velleius; Tacitus; Plutarch's *Life of Antony, &c.*; Appian's *Civil Wars*, books ii. iii. iv. v.; Suetonius's *Life of Octavius*; Dion Cassius, &c. The History of the times of Augustus may be seen partly in Ferguson's and partly in Crevier's *Roman Histories*; see also Clinton's *Fasti*.)

As the relations of the members of the Augustan family are exceedingly intricate, and yet a knowledge of them is essential to a full understanding of the history of the Roman Empire, we subjoin a *stemma* of the family drawn up by Lipsius. (See Oberlin's *Tacitus*, vol. ii. p. 581.)

C. Octavius by Ancharia has *Octavia the elder*; by Atia, daughter of Balbus, he has *Octavia the younger*, and *C. Octavius*, afterwards AUGUSTUS. From which of the daughters the following progeny springs is uncertain.

- I. *Octavia*
  - a. By C. Marcellus,
    - 1. *M. Marcellus*, m. (1) Pompeia dr. of Sextus Pompeius, and (2) Julia dr. of Augustus—has no progeny.
    - 2. *Marcella* the elder,
      - a. By M. Vipsanius Agrippa, — Children of names unknown
      - b. By Julus Antonius Africanus, son of the Triumvir, — *L. Antonius Africanus*, father or uncle of — *S. Antonius Africanus?*
    - 3. *Marcella* the younger.
  - b. By M. Antonius the Triumvir,
    - 1. *Antonia** the elder, By L. Domitius Ænobarbus,
      - 1. *Domitia*, m. Crispus Passienus?
      - 2. *Domitia Lepida* †
        - a. By M. Valerius Barbatus Messalla, — *Valeria Messallina*, m. Claudius, the emperor.
        - b. By Ap. Junius Silanus? — None.
      - 3. *Cn Domitius*, by Agrippina. — NERO.
    - 2. *Antonia* the younger. By Drusus, brother of Tiberius,
      - 1. *Germanicus*, adopted by Tiberius,
        - By Agrippina, dr. of Julia, — See below.
      - 2. *Livia* or Livilla, m. C. Cæsar, and afterwards Drusus son of Tiberius, is betrothed to Sejanus.
      - 3. CLAUDIUS,
        - a. By Plautia Urgulanilla,
          - 1. *Drusus*, Betrothed to dr. of Sejanus.
          - 2. *Claudia*.
        - b. By Ælia Petina,
          - *Antonia* m. Pompeius M. and Faustus Sulla.
        - c. By Valeria Messallina,
          - 1. *Octavia* Betrothed to L. Silanus, m. Nero.
          - 2. *Claudius Britannicus*.

* Tacitus makes Antonia the *younger* wife of Domitius, An. iv. 44, and xii. 64.

II. *C. Octavius*, afterwards *C. Julius Cæsar Octavianus* AUGUSTUS, has no children by his other wives; by Scribonia, daughter of L. Scribonius Libo, he has one daughter, *Julia*. *Julia*

- a. By M. Marcellus, son of C. Marcellus and Octavia, has no progeny.
- b. By M. Vipsanius Agrippa,
  - 1. *Caius Cæsar*, adopted by Augustus, m. Livia sister of Germanicus.
  - 2. *Lucius Cæsar*, adopted by Augustus, betrothed to Æmilia Lepida.
  - 3. *Julia*, By L. Æmilius Paulus, son of the Censor,
    - 1. *M. Æmilius Lepidus*, m. Drusilla dr. of Germanicus.
    - 2. *Æmilia Lepida*.*
      - a. Betrothed to Claudius.
      - b. By Ap. Junius Silanus?
        - 1. *L. Silanus*, Betrothed to Octavia, dr. of Claudius.
        - 2. *M. Silanus*, Proconsul of Asia.
        - 3. *Junia Calvina*, m. son of Vitellius.
      - c. By Drusus, son of Germanicus? { None.
  - 4. *Agrippina* By Germanicus,
    - 1. *Nero*, m. Julia dr. of Drusus, son of Tiberius.
    - 2. *Drusus*, m. Æmilia Lepida.
    - 3. CAIUS CALIGULA.
    - 4. *Agrippina*, By Cn. Domitius, { NERO.
    - 5. *Drusilla*, m. L. Cassius and M. Æmilius Lepidus.
    - 6. *Livia* or Livilla, m. M. Vicinius and Quinctilius Varus?
  - 5. Agrippa Postumus, adopted by Augustus.
- c. By Tiberius, has none.

III. Tiberius Claudius Nero, By Livia Drusilla,

- 1. TIBERIUS *Nero*, adopted by Augustus,
  - a. By Vipsania Agrippina, gr. dr. of Atticus, *Drusus*. By Livia, sister of Germanicus,
    - 1. *Ti. Gemellus*.
    - 2. — *Gemellus*.
    - 3. *Julia*.
      - a. By Nero son of Germanicus, { None.
      - b. By Rubellius Blandus, { *Rubellius Plautus*.
  - b. by Julia, { None.
- *Drusus*. By Antonia the younger, { See above.

In the person of the Emperor Nero the Julian family became extinct: as far as we have traced it here, the Julian blood descended from a single female, the sister of the Dictator Cæsar; the dictator had only a daughter Julia, who left no descendants.

AUGUSTUS I. of Saxony was younger brother of Maurice, who was made elector through the influence of Charles V., in place of his cousin John Frederic, who had fought against the emperor in the wars occasioned by the Reformation, and was therefore deposed by the diet. [See MAURICE.] On the death of Maurice in 1553, Augustus succeeded him. John Frederic, son of the deposed elector, aspired to the succession, but was obliged to satisfy himself with the duchy of Gotha and other districts. Hence arose the division between the electoral, now royal, house of Saxony, which continues in the successors of Augustus, and the ducal houses of Saxe Gotha and Saxe Weimar, which are the descendants of John Frederic. The reign of Augustus was more peaceful and prosperous than that of Maurice. Once only was he obliged to take the field against his relative John Frederic, who was led away by the suggestions of a Franconian adventurer, named Grumbach, who had been outlawed for the murder of the archbishop of Würtzburg and the plunder of that town. Grumbach found an asylum with the Saxon duke, and urged him to assert his claim to the electoral crown, by raising a general revolt against the Emperor Maximilian II.; and he even laid a plot for assassinating Augustus. The emperor demanded of the duke the outlaw Grumbach, and on the refusal of John Frederic to give him up, he was put under the ban of the empire, and the Elector Augustus was charged with his punishment. He besieged Gotha, took it, and made the duke prisoner. Grumbach and others were put to death; John Frederic was shut up in a prison for life, and his territories were divided between his two sons.

* There seems to be some confusion between Domitia Lepida and Æmilia Lepida, the granddaughter of Agrippa. One is somewhat surprised to find a Lepida in a Domitian family. With this exception the Lepidi are only found in the Æmilian gens. (See Lipsius on Tacit. Ann. xii. 64, and xiii. 1; Suet. Nero.)

Augustus showed himself intolerant towards the Calvinists, who had spread into Saxony and other parts of Germany, and between whom and the Lutherans there was much bitterness at the time. He banished them from his dominions, and caused a creed of Lutheran orthodoxy to be drawn up, which was styled *Formula Concordiæ*, and was accepted by three other Protestant electors of Germany. In other respects the sway of Augustus was mild and beneficent. He respected the constitutions of his country, and consulted the assembly of the states on all important occasions, especially in the raising of subsidies. His laws and ordonnances were also held in high estimation, and he was styled by some the Justinian of Saxony. He embellished Dresden, and built the fine palace of Augustenburg; and at the same time managed to leave the coffers of the state well filled at his death in 1586. He was succeeded by his son Christian I.

AUGUSTUS II. This is the title by which the monarch is generally known who united the crown of Poland with the electorate of Saxony in 1698, although in Saxon histories he is more generally styled Frederic Augustus I. He was the second son of John George III., elector of Saxony, and was born at Dresden in 1670. Distinguished from his earliest age by great personal advantages, uniting beauty of feature with Herculean strength, Augustus improved these to the utmost by military campaigns, by travels through Europe, and by a prolonged residence in its various courts. While at Vienna he formed a friendship with the future emperor, Joseph I. His father was somewhat mistrustful of the partiality shown by his son for courtiers and personages so hostile to the Protestant interest; and on this account the old elector forbade his visiting Rome,—a vain precaution, as it afterwards proved. For similar reasons a jealousy existed between Augustus and his elder brother, who succeeded to the electorate, as John George IV., in 1691. This prince dying in 1694, made way for Augustus, who showed himself severe towards his brother's mistress and favourites. His first step was an alliance with Austria, in whose behalf he raised troops against France; but as he refused to serve under Prince Louis of Baden, who commanded as Imperial General upon the Rhine, the court of Vienna entrusted him with an expedition against the Turks in Hungary. Here he showed more valour and obstinacy than either good fortune or skill. But it is to be remembered, that the Turks were then at the very height of military fame, that they had not long before encamped under the walls of Vienna, and that Sobieski himself, who had driven them thence, had not been always subsequently successful. As the Turks afterwards gave the name of *Iron-headed* to Charles XII., so they called Augustus the *Iron-handed*.

The death of the heroic Sobieski in 1696 left the throne of Poland open to the ambition of candidates. His son, James Sobieski, was thwarted in his hopes of succeeding to the royal heritage by the avarice and enmity of his mother. The elector of Bavaria, and the prince of Conti, both aspired to the throne. Augustus was induced to become their competitor by Count Przebedowski, one of the chief dignitaries of the kingdom, who promised that money would insure success. It is probable that the court of Vienna also urged him to the attempt, in order to prevent the crown of Poland from falling to the lot of a French prince. Augustus, through his able envoy, Count Flemming, lavished considerable sums at Warsaw: he thus obtained the advantage over his rival, who could but promise ten millions of florins, while Augustus paid them. The Protestant faith of the Elector of Saxony was still a serious obstacle; but Augustus removed it by a public recantation at Baden, near Vienna, on Whitsunday, 1797. He thus sacrificed not only the religious creed of his native kingdom, but its interests and resources, to the acquisition of a foreign crown. In addition to the ten millions of florins, Augustus promised to support an army of 6000 men at the cost of Saxony, and to recover Kaminietz, Wallachia, Moldavia, and the Ukraine.

Notwithstanding these promises, the great majority of electors, in a diet held the 27th of June, 1697, gave their voices to the prince of Conti. The minority, however, proceeded to proclaim Augustus, who entered Poland at the head of 8000 Saxons; while the prince of Conti, sailing unattended to Danzig, arrived in time to hear Te Deum chanted in honour of his rival's accession. Augustus made his entry into Cracow in a dress valued at a million of florins. In the early part of 1698 he succeeded in establishing him-

self almost the undisputed monarch of Poland. France and Sweden alone refused to recognize him.

The first aim of the new monarch was to keep his promise of recovering for Poland its lost possessions of Podolia, the Ukraine, and Kaminietz. War, conquest, the foundation of a great empire, and his own magnificence, were the favourite dreams of Augustus. He aimed in every respect at being the Louis XIV. of the North; but it was his fate to meet with as formidable rivals, and even more fatal reverses, than the French monarch. He commenced by concluding an alliance with Denmark, a measure which provoked the hostility of Sweden, and then marched with an army of Saxons and Poles to drive the Turks from Kaminietz. While proceeding on this expedition, the Polish monarch met at Rava the Czar Peter, not yet *the Great* in name, but returning from his travels with all the plans and projects that were to procure him this title. The bold, frank, ambitious, yet uncrafty Augustus was the ally most suitable to Peter's views: a close alliance was concluded between them, and a scheme of conquest, at the expense of Sweden, was projected. Augustus then continued his march against the Turks. Dissensions soon after broke out in his camp between the Poles and Saxons, and would have terminated in combat, but for the interference of a Lithuanian regiment. This cut short the military projects of Augustus; but the alliance with Russia enabled him to conclude the Treaty of Carlowitz, by which most of the territories which he sought to recover were ceded to Poland.

This war being happily terminated, the allied monarchs proceeded to the completion of their projects against Sweden. This kingdom, under the rule of an infant prince, seemed likely to offer no formidable resistance; and to detach Livonia from it struck Augustus as an easy task, more especially as Patkul, a refugee Livonian, promised to rally his countrymen in support of the Saxon cause. Augustus accordingly invaded Livonia, and laid siege to Riga. The provocation had one of those electric effects on human character that change the face of history: it roused young Charles XII. of Sweden from the insignificance of youth, and excited at once the prince and his people to a pitch of heroism, that rivalled, or even surpassed, for a time, the glories of the great Gustavus. To resist his enemies, Charles raised an army, and at its head first attacked Denmark, which was forced to submit. He then proceeded against the czar, encountered a large army of Russians at Narva, and gained a complete victory on the 1st of September, 1700. Augustus was still engaged in the siege of Riga. Compelled to abandon it by the approach of Charles, he affected to do so at the solicitations of the Dutch, and hastened to join the czar, with whom he concluded a new and more close alliance, offensive and defensive, at Birsen.

Charles in the meantime re-occupied Livonia, and in July, 1701, defeated the Saxon army on the Duna, compelling it to abandon fortresses and artillery. The Russians afforded small support to their allies; the Poles still less. The unfortunate Saxons were throughout made the sacrifice and the sufferers for others: for Augustus, wanting the art of attaching to him any of the great parties of Poland or Lithuania, could depend in his distresses upon the affection of his native kingdom alone. Lost in self-admiration, like Louis XIV., no one would have been more worshipped than Augustus, had he been fortunate or great; in adversity, none were more despised or forsaken. The only mode that he could now devise for arresting the hostile progress of Charles, was to dispatch to him the Countess of Kœnigsmark, his mistress, in the hope that the persuasions of beauty might soften the resolutions of the Swedish king. Charles, however, refused to see the fair envoy: he persisted in regarding Augustus as a usurper, and would grant no peace to the Poles, except on the condition of their electing another king. But Augustus resolved not to yield without another effort: he flew to his native Saxony, drained it of fresh funds and soldiers, and marched by the way of Cracow to the deliverance of Warsaw. The armies met between Clissow and Pinczow, on the 19th July, the very day which, in the previous year, had been marked by the fatal battle on the Duna. The result was now similar. The Poles, composing the right wing of the Saxon army, fled, and the brunt of the battle falling upon the latter, they suffered another disastrous defeat. Several of the palatinates of Poland, in consequence of this, formed a kind of league, for the purpose of preserving the land from the ravages of war. At the head of these was Posen, of which Stanislaus Leczinski was Palatin. Charles succeeded in rallying this party against Augustus, who still made some vain efforts to maintain his ground. The Saxon general made another stand at Pultusk, with the cavalry which he commanded, but the Swedes were, as usual, victorious; and Charles penetrating to Warsaw, prepared to have another King of Poland elected in place of Augustus. His views turned at first naturally toward the sons of Sobieski, whose election would have indicated a national choice; but Augustus succeeded in carrying off the two eldest brothers; and as the younger refused to accept the crown to the prejudice of his elders, Charles was obliged to seek another candidate. He pitched upon Stanislaus Leczinski, who was accordingly elected king, on the 12th of July, 1704.

The new monarch participated, of course, in his patron's hostility towards Saxony and Russia, and both accordingly prepared to invade the electorate, and by the conquest of Dresden itself force Augustus to abandon all claim to the Polish crown. The elector of Saxony, however, had not yet lost all hope: Russia was his ally, Austria his friend, and the Pope obstinately refused to recognize the right of his competitor. A new army of Saxons, commanded by Schulenburg, had been raised to defend the electorate, and the czar had promised to second its operations. But fortune was again wanting to the efforts of the Saxons, and the defeat of Schulenburg at Fraustadt left Saxony completely exposed to the conqueror. After this disaster, Augustus began to consider submission as inevitable; he accordingly sent agents to treat with Charles, secretly however, since he himself was yet within the camp and the power of Russia. But before Augustus could escape, the czar forced him to a measure calculated to interrupt, or prevent altogether, a reconciliation with Charles XII. By the advance into Saxony, the Swedish force in Poland had been much reduced; its commander had moreover relaxed his vigilance, relying upon the negotiations which he was aware were carrying on. The czar forced Augustus, however reluctant, to take advantage of the moment and to attack the Swedes. He did so with success, and even entered Warsaw in momentary triumph. But Augustus was ashamed of an advantage so unfairly gained, and so little likely to conduce to a permanent superiority. Instead, therefore, of making use of it to raise his tone, or diminish his concessions to Sweden, he on the contrary offered to make amends for the aggression; and at the same time accepted without hesitation the conditions that Charles had already imposed. Abandoning Russia, he hastened in person to meet the Swedish monarch at Altranstadt, and to conclude peace upon terms sufficiently humiliating. Augustus abdicated the crown of Poland in favour of Stanislaus, promised to send this prince the crown jewels, and to congratulate him by letter. He abandoned his allies and his fortresses, and was obliged to give up the unfortunate Patkul to the vengeance of Charles. What must have been still more humiliating, Charles, in imitation of his great predecessor Gustavus Adolphus, made himself the Defender of the Protestant Faith; and stipulated that Augustus should respect the creed and privileges of his protestant subjects of Saxony. This peace was concluded towards the close of the year 1706.

Augustus now saw himself confined to his native dominions, and condemned to political insignificance. He endeavoured to drown disappointment in luxury and expense; but these alone did not satisfy his restless spirit. In 1708 he placed a Saxon army of 9000 men at the emperor's disposal in the Netherlands. Schulenburg commanded them; but Augustus himself served in their ranks as a volunteer, and as such took part in the siege of Lille. His natural son, Maurice of Saxony, made his first campaign on this occasion. The battle of Pultowa, and the overthrow of the power of Sweden in 1709, recalled Augustus to the throne of Poland. The pope released him from his oath of abdication. Russia, Prussia, and Denmark supported his pretensions; and Stanislaus, instead of offering resistance, fled into Turkey to join Charles. The first efforts of Augustus on his restoration were to drive the Swedes altogether from Germany. In conjunction with Denmark, he marched into Pomerania; but here he was repulsed by Steinbock, the Swedish general. Fortune, often favourable to Augustus while he remained inactive, never failed to abandon him as soon as he took the lead, or endeavoured to play the conqueror.

Charles XII. himself soon after re-appeared upon the scene; but all his heroism was less dangerous to the allies than the intrigues of his minister, the Count de Goertz, who almost succeeded in subverting the existing alliances between the European states. He had nearly dissolved the bond between Augustus and Russia, when the death of Charles XII. occurred, and at once brought to a conclusion the struggles of war and of political intrigue.

The restoration of Augustus to the throne of Poland aggravated the ills of that unhappy country. If Stanislaus had been raised to the throne by the dictation of a foreign power, Augustus was still more a foreigner, who relied upon Russian support, and who first placed the country at the mercy of surrounding states. Unable to rely on the Poles, Augustus endeavoured to defend his authority by Saxon soldiers. Insurrection and civil war were the consequences; and the means by which these were terminated were as disastrous as the ills they remedied. It was first decided that the Saxon soldiers should evacuate the country; and on the other hand it was agreed, under the crafty mediation of Russia, that the national army of Poland should be reduced, from near 100,000 to the insignificant force of about 20,000 men. 'These measures of Augustus,' says Malezewski, 'brought peace to Poland; but it was the peace of the tomb.'

The interval between 1718, the year of Charles XIIth's death, and that of Augustus, which took place in 1733, passed away without being marked by any remarkable incidents. The unsuccessful effort of Augustus to secure the duchy of Courland for his son Maurice, was almost the only attempt at active policy. A marriage between the king's eldest son and an archduchess of Austria was an opportunity for Augustus to display all his magnificence The procession was such as no court in Europe could rival; diamonds and embroidery had never been seen in greater profusion. But the good people of Dresden could only look with discontented eyes on a scene of magnificence, cruelly contrasted with their own recent and present misery. In addition to this, the recantation of the young prince, and the favour shown by the king to the Jesuits and high Catholic party in Poland, filled the Lutheran population of Saxony with anxious fears for their religious liberties.

Augustus was not beloved by his subjects in either of his kingdoms; each complained that they were sacrificed to the other, while, in reality, both were sacrificed to the vain-glory of the prince. In Saxony, however, his prodigality was favourable to the arts; and the porcelain manufacture of Saxony (the rage with the princes of that day) may be said to have been founded in his reign. Poland had not even this trifling recompense. Such were the miserable results of the reign of a monarch who possessed personal accomplishments in the highest and mental talents in no mean degree. Like Louis XIV., his great model, he was the hero of courtiers rather than of soldiers—beginning his career with mighty plans of empire, and saved at length from ruin merely by the kindness of fortune. At once a gallant and a bigot, necessitous and prodigal, his pride commenced the ruin of the kingdoms over which he ruled, while the gorgeous luxury and far-famed magnificence of his person and his court rather aggravated than diminished the well-grounded discontent of his people.

AUGUSTUS III., son of Augustus II., elector of Saxony and king of Poland, was born at Dresden in 1696. His father, wishing to give him the same accomplishments that had distinguished himself, sent him in 1711 to visit the different courts of Europe; but the young prince gained from his travels only the love of idleness and pleasure. He returned 'stiff, indolent, and backward,' says the historian of Saxony; 'good-natured, indeed, which served to render him the prey of favourites. The father had at least an aim, in which he may have failed; but the son had neither aim nor purpose to fail in.'

The death of his father in 1733 made Augustus elector of Saxony, and left him at the same time the strongest pretensions to the throne of Poland. His indolent nature shrunk, it is said, from struggling to attain this uneasy eminence; but his wife, a daughter of Austria, supplied her husband with ambition, and Augustus became a candidate. He was supported by the courts of Vienna and St. Petersburg, both anxious that Poland should have for a monarch a prince of easy disposition, possessed of foreign and distant dominions. France, however, favoured his father's old competitor, Stanislaus, whose daughter had become the wife of Louis the Fifteenth, and the Polish nation eagerly embraced the occasion to elect and to rally round a native prince. But a Russian army advanced to enforce the pretensions of Augustus III.; the Poles disputed gallantly, but unsuccessfully, the passage of the Vistula, and under Russian auspices a few of the Saxon partizans in Poland, meeting in the village of Kamien, proceeded to the counter-election of Augustus. His competitor Stanislaus was obliged to fly and take refuge in Dantzig, which he was compelled eventually to abandon, along with his pretensions to the throne of Poland. Augustus, although crowned at Cracow in the commencement of 1734, did not become undisputed monarch of Poland till after the Diet of Pacification, held at Warsaw in 1736. Though oppressed by foreign troops, the Poles showed themselves jealous of their independence. They stipulated for the dismissal of foreigners, and for the maintenance of only 1200 Saxon guards within the kingdom. Augustus yielded; and half reluctant, Poland once more submitted to a Saxon prince.

Up to the time of his accession, Augustus had bestowed his confidence chiefly upon the old companion of his travels, Sulkowsky; but this favourite was superseded by another, Count Bruhl, who henceforth monopolized all authority in Saxony and Poland. Mutual spoliation was then the sole thought of the powers of Germany. The rise of Prussia excited the jealousy of the Saxon house, and incited its ministers one day to oppose Prussian aggrandizement, the next day to imitate it. The probable dissolution of the Austrian empire after the death of Charles the Sixth gave rise to interminable intrigues. It was Sulkowski's project to conquer Bohemia for Saxony. Bruhl at first abandoned this scheme and leagued with Austria to support the succession of Maria Theresa. In a little time, however, he was tempted to throw Saxony into the opposite party, and to resume the scheme of appropriating Bohemia, while Frederic was to have Silesia. Augustus acquiesced. The Saxon and Prussian troops fought in alliance, but had not been long in the field, when Augustus learned to his astonishment that his minister had again deserted Frederic. Soon after, in 1745, an alliance was concluded at Warsaw between England, Saxony, and Austria, for the defence of the house of Hapsburg. The king of Prussia instantly marched 100,000 men into Saxony, routed all that opposed him, and made himself master of Dresden, December, 1745; whilst Augustus, with his minister, took refuge in Poland. The truce of 1746, however, restored to him the electorate; and at the same period took place the marriage of Augustus's daughter, Maria Josepha, with the dauphin of France; a marriage from which sprung Louis XVI., Louis XVIII., and Charles X., the present exiled king of France.

The impossibility of coping with Prussia, already proved by the defeat of the Saxons and their allies, could not keep Augustus or his minister from leaguing once more against Frederic, and even planning to share that monarch's territories with Russia. In consequence of this, Frederic invaded Saxony in 1756, and succeeded in taking prisoner the entire Saxon army in its intrenched camp at Pirna. Augustus again fled to Poland.

His reign in this latter country was as pernicious as in Saxony. If Saxony was humbled in its pride, stripped of its resources, and ravaged by invading armies, Poland suffered equal injury, though less violence. 'It was allowed to sink into what Rulhières calls "a tranquil anarchy." Its diets, which were seldom held, were never allowed to come to a resolution or pass a law. It had no court or king; Augustus, who was passionately fond of the chace, preferred the well-stocked forests of Saxony to the plains of Poland.

Saxony itself having fallen into insignificance, its monarchs sunk into a state of dependence upon Russia, and St. Petersburg became the capital, to which the Poles resorted, rather than to Dresden. Thus the supremacy of Russia was allowed silently to establish itself in Poland under the empty government of Augustus. Pictures, porcelain, plate, and music, were the only cares of this prince, who was to his father what Louis XV. was to Louis XIV.; except that Augustus III., though prodigal and luxurious, was no sensualist. Rulhières even reproaches him for his stupid constancy to his queen; a singular specimen of the French historian's own ideas of morality. Augustus III. expired at Dresden, in October, 1763.

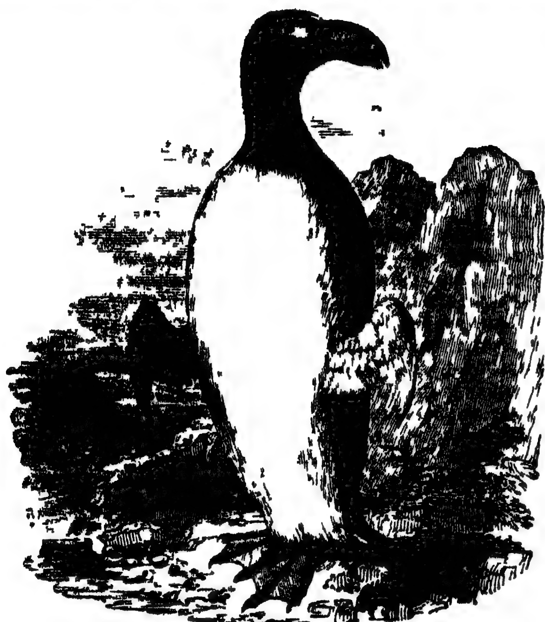
AUK (zoology). The vernacular name for certain sea-

birds of the family *Alcadæ*, known scientifically as species of the subgenera *Alca*, *Fratercula*, *Mergulus*, and *Phaleris*.

Subgenus Alca.

The true Auks, though they are strictly oceanic birds, scarcely ever leaving the water except for the purposes of reproduction, will sometimes proceed swiftly, though awkwardly, on foot when pursued on land. They breed in large companies, in caverns and rocky cliffs, laying only one disproportionately large egg. Their food, which they obtain by diving (an operation in which they are materially assisted by their wings as well as by their feet), consists of small fishes, crustaceans, and other marine animals. The young are said to be fed from the crops of the parents, not only before they are able to leave the place of their birth, but also for some time afterwards.

The genus *Alca*, as it is reduced by modern ornithologists, includes but two species, apparently incongruous. The first of these, the *Great Auk (Alca impennis*, Linn.) remarkable for the imperfect development of its wings, seldom leaves the arctic circle and the regions bordering on it, and is a rare visitant to the British isles. Dr. Fleming, however, gives an account of one taken alive at St. Kilda



[Alca impennis.]

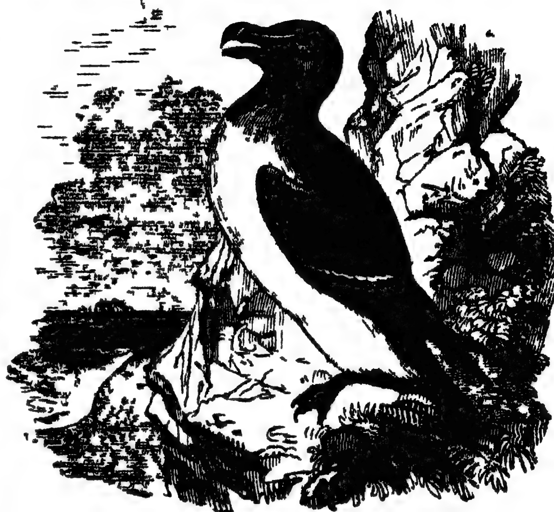
(where they are sometimes known to breed), which, even with a long and heavy cord tied to its leg, swam under water with extraordinary speed. The power of the apparently useless wings as organs of progression was still more strongly shown in the Great Auk chased ineffectually by Mr Bullock during his tour to the Northern Isles, for the four oars of the bird are said to have left the *six-oared* boat of his pursuers far behind. According to the same authority, only a single pair had been known to breed in Papa Westra for several years. Newfoundland is recorded as one of their breeding places, and Pennant relates that the Esquimaux who frequented the island made clothing of their skins. In the ocean that washes the Feroe Isles, Iceland, and Greenland, where they dwell in great numbers, they may be frequently seen on the floating ice; but Pennant says that they are observed never to wander beyond soundings, and that seamen direct their measures according to their appearance.

The food of the Great Auk consists principally of fish, and the Lump-fish (*Cyclopterus lumpus*) is said to be its favourite morsel.

The length of the bird is somewhat under three feet. The winter plumage, which begins to appear in autumn, leaves the cheeks, throat, fore-part, and sides of the neck white. In spring, the summer change begins to take place, and confines the white on the head to a large patch, which extends in front and around the eyes; the rest of the head, the neck, and upper plumage is of a deep black. There is a specimen of the bird in its summer dress, in the British Museum, with 'Papa Westra' on the label. The Great Auk breeds in June and July, laying one egg, about the size of a swan's, of a whitish-yellow, marked with numerous lines and spots of black, which have been supposed to bear some resemblance to Chinese characters.

In the *Black-billed Auk*, *Razor-bill*, or *Murre* (*Alca torda*, Linn.), the development of the wings is carried to the usual extent necessary for the purposes of flight, though the bird uses them with great effect as oars when swimming under water.

The northern hemisphere, where they are widely diffused, is the portion allotted to these birds; but it is in the higher latitudes that they swarm. In England, the Needles, and other adjacent precipitous cliffs, have a fair share of them; and here, as in other places, the 'dreadful trade' of taking their eggs, which are esteemed a delicacy, for salads especially, is carried on. In Ray's Willoughby, the habits of the *Razor-bill* are thus described: 'It lays, sits, and breeds up its young on the ledges of the craggy cliffs and steep rocks by the sea-shores that are broken and divided into many as



[Alca torda.]

it were stairs or shelves, together with the *Coulternebs* and *Guillemots*. The Manks men are wont to compare these rocks, with the birds sitting upon them in breeding time, to an apothecary's shop—the ledges of the rocks resembling the shelves, and the birds the pots. About the Isle of Man are very high cliffs, broken in this manner into many ledges one above another, from top to bottom. They are wont to let down men by ropes from the tops of the cliffs, to take away the eggs and young ones. They take also the birds themselves when they are sitting upon their eggs, with snares fastened to the tops of long poles, and so put about their necks. They build no nests, but lay their eggs upon the bare rocks.'

On the coast of Labrador they abound, and the thousands of birds there killed for the sake of the breast feathers, which are very warm and elastic, and the quantities of eggs there collected, amount to almost incredible numbers.

The summer and winter dress of the Razor-bill, though different, do not vary so remarkably as the plumage of many other birds. In the summer dress, the white streak which goes to the bill from the eyes, becomes very pure, and the cheeks, throat, and upper part of the front of the neck are of a deep black, shaded with reddish. In winter, the throat and fore-part of the neck are white.

The young of the year is, by the best authorities, supposed to be the *Alca Pica* of Gmelin.

The Razor-bill is little more than fifteen inches long. The egg (for they lay but one) is very large in proportion to the bird, being about the size of that of a turkey, but of a longer shape, pointed towards the smaller end, white or sometimes yellowish, blotched, and streaked with dark brown, chiefly towards the larger end.

Subgenus Fratercula.

Leaving the true Auks we come to the genus *Fratercula*, Briss. (*Mormon*, Illiger), of which the *Labrador Auk*, *common Puffin*, or *Coulterneb*, *Fratercula Arctica*, *Mormon*



[Fratercula Arctica.]

fratercula, Temm., *Alca Arctica*, Linn., may be taken as an example.

Selby gives the following account of the habits of this bird, and is corroborated by others who have written on the subject: 'Although the puffin is found in very high latitudes, and its distribution through the arctic circle is extensive, it is only known to us as a summer visitant, and that from the south, making its first appearance in the vicinity of its breeding stations about the middle of April, and regularly departing between the 10th and 20th of August for the southern coasts of France, Spain, and other parts of Europe, where it passes the remainder of the year. It breeds in great numbers upon Priestholm Island, off the coast of Anglesea, on the Isle of Man, and most of the islands, indeed, of the English and Scottish coasts. Many resort to the Feroe islands, selecting such as are covered with a stratum of vegetable mould; and here they dig their own burrows, from there not being any rabbits to dispossess upon the particular islets they frequent. They commence this operation about the first week in May, and the hole is generally excavated to the depth of three feet, often in a curving direction, and occasionally with two entrances. When engaged in digging, which is principally performed by the males, they are sometimes so intent upon their work as to admit of being taken by hand, and the same may also be done during incubation. At this period I have frequently obtained specimens, by thrusting my arm into the burrow, though at the risk of receiving a severe bite from the powerful and sharp-edged bill of the old bird. At the farther end of this hole the single egg is deposited, which in size nearly equals that of a pullet, and, as Pennant observes, varies in form; in some instances one end being acute, and in others both equally obtuse. Its colour when first laid is white, but it soon becomes soiled and dirty, from its immediate contact with the earth; no materials being collected for a nest at the end of the burrow. The young are hatched after a month's incubation, and are then covered with a long blackish down above, which gradually gives place to the feathered plumage, so that at the end of a month or five weeks they are able to quit the burrow, and follow their parents to the open sea. Soon after this time, or about the second week in August, the whole leave our coasts, commencing their equatorial migration. At an early age the bill of this bird is small and narrow, scarcely exceeding that of the young *Razor-bill* at the same period of life; and not till after the second year does this member acquire its full development, both as to depth, colour, and its transverse furrows.

In rocky places (Dover cliffs for instance), they deposit their single egg, as Montagu observes, in the holes and crevices. The length of the bird is about twelve inches. The half of the bill nearest the head is bluish; the rest red. The corners of the mouth are puckered into a kind of star. The legs and feet are orange. The plumage is black and white, with the exception of the cheeks and chin, which are sometimes grey. The young, pickled with spices, are by some considered dainties; they are also occasionally potted in the north.

Sprats are supposed to be the principal food of the *puffin*; but there is little doubt that other fishes and crustaceans are acceptable to the bird.

Subgenus Mergulus.

The *Little Auk*, *Common Rotche*, or *Sea Dove*, *Mergulus Melanoleucos* of Ray, *Uria Alle* of Temminck, and *Alca*



[Mergulus Melanoleucos.]

Alle, Linn., is an example of the genus *Mergulus* of our countryman Ray.

The *Little Auk* braves the inclemency of very high latitudes, and congregates in great flocks far within the arctic circle. The inhospitable coasts of Greenland and Spitzbergen are the dwelling-places of these birds, and thousands have been seen at Melville Island. In these dreary regions they are said to watch the motion of the ice, and, when it is broken up by storms, down they come in legions, crowding into every fissure to banquet on the crustaceans and other marine animals which there lie at their mercy. It can hardly be called an occasional visitant to this country, for those which have appeared here have been evidently exhausted birds, buffeted by storms, and driven by contrary winds far from the spot congenial to their habits. The little auk is between nine and ten inches in length; the bill is black, and the legs inclining to brown; the plumage is black and white, and in winter the front of the neck, which is black in summer, becomes whitish: the change takes place in the autumn.

The bird lays only one egg, of a pale bluish-green, on the most inaccessible ledges of the precipices which overhang the ocean.

Subgenus Phaleris.

The *Perroquet Auk*, *Phaleris psittacula*, Temminck, *Alca psittacula*, Pallas, may be taken as an illustration of this subgenus.



[Phaleris psittacula.]

Kamtchatka and other northern regions shelter these birds in abundance. They swim and dive admirably. Stories are told to prove their unsuspicious character; and it is said that the natives place a dress with large sleeves near their holes and burrows, into which the artless birds, mistaking the sleeves aforesaid for their own retreats, creep and are taken.

About Midsummer, they lay one large egg, nearly of the size of a hen's, with brown or dusky spots on a whitish or yellowish ground.

The Perroquet Auk is about eleven inches in length. From behind the eye a tuft of white feathers, which hang on either side of the neck, shoots forth. The head, neck, and upper parts are black, blending into ash-colour on the fore-part of the neck; the under parts from the breast are white; the legs are yellowish. In the old bird the bill is red, while the young one has it of a yellowish or dusky colour.

AULIC COUNCIL (Reichshofrath), the name once given to the personal council of the emperor of Germany, which was distinct from the imperial chamber, or Reichs-Kammergericht, which was the supreme tribunal of the German empire. [See IMPERIAL CHAMBER.] The Aulic Council consisted of a president, a vice-president, the vice-chancellor of the empire, and eighteen councillors, six of whom were required to be protestants: the votes of these six, when unanimous, were considered equal to those of all the rest. The nomination of the Aulic Councillors belonged to the emperor, who paid them, with the exception of the vice-president, who was appointed by the archbishop of Mainz; they were drawn from two classes, nobles and civilians. The affairs which were under the exclusive jurisdiction of this court were of three sorts: 1. Feudal processes concerning the immediate feudatories of the emperor; 2. Those called *reservata Cæsaris*, including appeals from the hereditary dominions of the emperor; 3. All matters concerning the imperial jurisdiction in Italy, as the emperor was styled King of the Romans. The investitures of counties of the German empire were given by the Aulic Council. The Aulic Council did not interfere in the political or state affairs of the empire. The Council ceased at the death of every emperor; and the new emperor made a fresh appointment. The decisions of the Aulic Council were submitted to the emperor for his approbation, by which they became law. Pöllnitz, in the first volume of his Memoirs, compares the Aulic Council to the old French Parliament, with this difference, that the former could not make remonstrances to the sovereign, and did not register any other acts but its own decisions.

At the extinction of the German empire by the renunciation of Francis II. in 1806, and the establishment of the Confederation of the Rhine under the protection of the Emperor Napoleon, the Aulic Council ceased to exist. There is, however, an Aulic Council at Vienna for the affairs of the war department of the Austrian empire: it is called *Hofkriegsrath*, and consists of twenty-five councillors. The members also of the various boards or chancelleries of state for the affairs of Bohemia, Hungary, and Transylvania, Italy, and Gallicia, are styled Aulic Councillors, but are inferior in rank to the councillors of state, of which latter two sit at the head of each board. (*Austria as it is*, London, 1827.)

AULIS. [See EGRIPOS.]

AULUS GELLIUS. [See GELLIUS.]

AUMALE, CHARLES DE LORRAINE, DUC D', sprung from a branch of the ducal house of Lorraine, which had settled in France about the beginning of the sixteenth century, when it was possessed of the fief of Aumale. His father, Claude d'Aumale, was governor of Burgundy, and uncle to Henry Duke of Guise, the head of the League. [See GUISE.] Charles d'Aumale entered into the party of the League, which, under pretence of suppressing the Huguenots, aspired to the supreme power. He was the means of subjecting Picardy and Normandy to the League. After the assassination of the Duke of Guise, in December, 1588, D'Aumale and the Duke of Mayenne became the heads of their party. D'Aumale in 1589 took possession of Paris, from which King Henry III. had been obliged to retire, and he dissolved the parliament by force, and sent its members to the Bastille. Shortly afterwards he marched from Paris with 10,000 men to attack the town of Senlis, but was defeated by La Noue. He still defended Paris for some time against the forces of Henry IV., who, after the assassination of Henry III., succeeded to the crown, but seeing the bad state of the affairs of his party after the battle of Ivry, he left the capital. After the surrender of Paris to Henry IV., D'Aumale joined the Spaniards, who had invaded the province of Picardy, for which he was declared guilty of high-treason by the parliament of Paris, and sentenced to be broken on the wheel, which sentence was executed in effigy the 24th of July, 1595. D'Aumale, however, continued to reside abroad, chiefly in Flanders, enjoying the favour of the Spanish government. He died at Brussels in 1631, in his seventy-seventh year. (Lacretelle, *Histoire de France pendant les Guerres de Religion*.)

AUNIS, one of the former provinces or military governments of France; and remarkable as being the smallest of those divisions. It was bounded by the ocean on the W., on the N. by Poitou, from which it was separated by the river Sèvre (distinguished as the Sèvre Niortaise), and on the E. and S. by the province of Saintonge. It is watered by the Sèvre just mentioned and the Charente. These rivers, rising in the more inland provinces, pass through Aunis in their course to the ocean. The soil is generally dry, but it produces corn, and grapes, from which good wine and brandy are made; while the marshy tracts afford pasturage for a considerable quantity of cattle. There is little wood. The salt marshes, which are considerable, yield salt of the best quality; but their exhalations are prejudicial to the health of the inhabitants. The maritime situation of the district, and the excellent ports which it possesses, render it commercial and wealthy. The chief article of export is brandy: but the cod fishery, and the colonial and coasting trade employ several vessels. The coast abounds in shell-fish, of species that are not very common; and the mussel-fishery (*pêche des moules*) brings in considerable profit. The salt is of three kinds, white, grey, and reddish; the first is the most esteemed.

The maps differ considerably in giving the boundaries of Aunis. Some contract the province so far as to exclude the town of Rochefort, which is on the northern bank of the Charente; while others make the Charente the southern boundary of Aunis, and so include Rochefort. The map given in the Atlas to the *Encyclopédie Méthodique* extends the province still farther south to the Gironde; for the district of Brouageais, which formerly appertained to Saintonge, was dismembered from that province and joined to Aunis, which thus included all the sea coast between Poitou and Guienne, together with the islands of Ré, Aix, and Oleron. The district of Brouageais seems to be productive in salt, as also the isle of Oleron. The isle of Ré produces wine; but is ill-provided with wood, and is not fruitful in corn.

The chief town of Aunis was La Rochelle; and to this we may add Rochefort and Marennes as next in importance.

The province is now comprehended in the department of Charente Inférieure (Lower Charente). (Malte Brun; *Encyclopédie Méthodique*, 'Géographie Moderne,' article Aunis.)

AURANTIA'CEÆ, or the orange tribe, are dicotyledonous polypetalous plants, with dark-green jointed leaves, filled with fragrant essential oil collected in little transparent dots, and a superior ovary changing to a succulent berry, the rind of which is also filled with fragrant essential oil. No natural order can well be more strictly defined than the orange tribe, and none have properties more uniform and definite. It consists of trees or shrubs found exclusively in the temperate or tropical parts of the Old World, and unknown in a wild state in America; their flowers are usually odoriferous, and their fruits subacid; the rind has some shade of yellow. They principally differ from each other in the number and proportion or arrangement of their stamens, in the number of cells or seeds in the fruit, and in the texture of the rind of the fruit, which does not always pull off as in the orange, the lemon, the citron, and their congeners, but is frequently a mere skin inclosing the pulp. The natural order which is most nearly allied to the orange tribe is that called *Xanthoxyleæ*, into which the oranges pass by their climbing genus, *Lavanga*, and which differ principally in having a hard dry fruit which splits into several carpels.



[Aurantiaceæ.]

Common orange. 1. A flower with its calyx, corolla, stamens, and style. 2. A portion of the stamens. 3. An ovary cut through transversely. 4. A fruit cut through in the same direction.

AURE D', one of the 'Four Valleys' (Quatro Vallées) in Upper Armagnac. [See ARMAGNAC, and PYRE'NE'ES, HAUTES.]

AURE, a small river in Normandy, rising near the town of Mortagne, in the department of Orne, and flowing in a direction a little to the north of east, until it joins the Eure not far from Dreux. As its whole course is not much more than forty miles, it would not deserve notice, but for the circumstance that its stream was interrupted and its waters swallowed up in deep pits or abysses which occurred in its course. It is supposed by Desmarest (in the article 'Aure,' in the *Encyclopédie Methodique*, 'Geographie Physique'), that this absorption of the waters was consequent upon the accumulation of mud in the bed of the river, which caused the waters to overflow, and to work out for themselves subterranean channels. But whatever may have been the cause of the phenomenon, the mills on the stream were materially injured by the frequent failure of the water; and this injury led to the application of a remedy. The bed of the river was cleansed, the mud which had accumulated taken away, the pits by which the water had been absorbed stopped up, and the orifices by which the water so absorbed in winter issued forth again, were made to empty themselves into the stream. (*Encyclopédie Méthodique.*)

AURE'LIA, in entomology, a name given to that state of an insect which is between the caterpillar and its final transformation, and is commonly called a chrysalis or pupa. The term aurelia was first applied by the Romans, and that of chrysalis by the Greeks, to certain butterfly pupæ which have a golden colour. In England, those of the peacock (*Vanessa Io*) and the small tortoiseshell (*Vanessa Urticæ*) butterflies are beautiful examples, and may be seen in abundance hanging to the common stinging nettles about the latter end of the month of June. [For further account, see PUPA.]

AURELIANUS, LUCIUS DOMITIUS, is commonly said to have been born at Sirmium, in Pannonia; but the place of his birth is not distinctly ascertained, nor do we find the date of it exactly stated. His father was a husbandman, his mother priestess of a temple of the Sun. It was said, probably by the flattery of later times, that his subsequent elevation was presaged by a variety of prodigies and omens. At an early age he enlisted as a common soldier; tall, handsome, and strong, skilful and diligent in all athletic and military exercises, temperate in his habits, and of acute intellect, he rose from his humble station to the highest military offices, during the reigns of Valerian and Claudian. It is a trifling circumstance, but not unworthy of notice, as illustrative of the qualities looked for in a general at that time, that the boys used to sing to the following effect in praise of his personal prowess:—'Mille, mille, mille, mille, mille, mille, decollavimus; Unus homo mille, mille, mille, mille, decollavimus. Mille, mille, mille vivat, qui mille mille occidit. Tantum vini habet nemo quantum fudit sanguinis.' He was distinguished by the soldiers from another Aurelian, also a tribune, by the characteristic epithet 'sword in hand' (*manu ad ferrum*). As an officer, his discipline was strict even to severity. He wrote to his lieutenant, 'If you wish to become tribune, or to live, keep the soldiery in order. Let no one steal another man's fowl, nor touch his sheep. Let none plunder grapes, nor injure corn-fields. Let none exact oil, salt, or wood. Let each be content with his own rations. Let each get rich from the booty of the enemy, not from the tears of the provincials,' &c.

On the death of Claudius, honourably distinguished by the appellation of Gothic, A.D. 270, Quintillus, brother of Claudius, assumed the purple, but resigned it by a voluntary death at the end of seventeen days, on hearing that the legions of the Danube had raised Aurelian to the imperial dignity. The new emperor suppressed an inroad of the Suevi and Sarmatæ, and compelled them to retreat to the northern side of the Danube; but he withdrew the Roman troops from the province of Dacia, and thus doubly strengthened the frontier of the empire by rendering the Danube its boundary, and by abandoning a district too distant to be easily defended, and too thinly peopled to defend itself. While thus engaged, Aurelian was recalled to the north of Italy, by an invasion of a German tribe, the Alemanni or Marcomanni. After various alternations of success, among which we may notice a battle near Placentia, in which the Roman troops were defeated, the force of the barbarians was entirely destroyed, A.D. 271. Aurelian then visited Rome, punished with a ferocious severity the authors of a sedition which had disturbed the city, and repaired the walls, including an additional space within their limits. The disturbance at Rome was owing to the 'Monetarii,' a body of men explained by Facciolati to be the coiners, a set numerous and united enough to raise seditions; to support which, he refers to the passage of Eutropius (lib. ix.). Aur. Victor also says that the 'monetarii rebellaverunt,' got up a rebellion. These monetarii were apparently the persons who managed the public coinage, which they had probably debased for the sake of their own profit. We know that Aurelian afterwards issued a new and improved coinage. See Gibbon (ch. xi. end), who puts this rebellion after Aurelian's triumph. Vopiscus puts it after the defeat of the Alemanni; Eutropius and Aur. Victor do not fix any time.

Aurelian at this time was master only of the central portion of the Roman world. Under the weak and contemptible princes who preceded the energetic reigns of Claudius and Aurelian, a multitude of contenders for empire started up, who fell one before another, or maintained, in their several districts, a short and anomalous independence. Of these, the last and most powerful were Tetricus and Zenobia, who respectively held the extreme west and east of the Roman empire. Spain, Gaul, and Britain owned, in name, the authority of Tetricus; but he was little more than a pageant of a monarch, in seeming possession of a power which he could not wield and dared not resign. He himself invited Aurelian to relieve him from this splendid misery, and betrayed his own army into a defeat near Châlons, in Champagne, while he himself, with a few friends, took refuge with his more fortunate competitor. Spain and Britain acknowledged the victor. Gibbon places these events in the year 271, contrary to most other historians, who make them subsequent to the fall of Zenobia. (See Vopiscus, cap. 32.)

The west being secured, Aurelian betook himself to that war, by the successful issue of which he is best known, the reduction of the great, flourishing, and short-lived city of Palmyra. [See PALMYRA, ODENATHUS, ZENOBIA.] Odenathus, who had raised his native city to this height of power, was dead, and succeeded by his widow, the celebrated Zenobia, a woman of accomplished tastes and masculine talents. The march of Aurelian was busy as well as toilsome. In his route through Illyria and Thrace

he met and vanquished some of the barbarian hordes who infested the frontier provinces of the Roman empire. Passing through Byzantium, he traversed Bithynia; Ancyra (in Galatia) submitted; Tyana was besieged and taken; and Antioch opened its gates after a slight skirmish at Daphne. This is the statement of Vopiscus; but Eutropius speaks of a severe *battle at Antioch, and makes* no mention of that fought at Emesa. The hostile armies met at Emesa, in Syria, where Aurelian gained a decisive victory, and continued his march to Palmyra unopposed, except by the constant attacks of the 'Syrian robbers,' from whom much inconvenience was sustained in crossing the deserts. The resistance of the city did credit to its warlike fame. Vopiscus has preserved a letter from Aurelian himself, in which he complains that the Romans talk of his waging war with a woman, as if she fought with her own unassisted strength, and continues, 'It cannot be told what preparation for war, what store of arrows, spears, stones, is here. No part of the wall but is occupied by two or three balistæ, and there are engines to cast fire. She does not fight like a woman, nor like one who fears punishment. But I trust that the gods will assist the republic, who never have been wanting to our undertakings.' He offered favourable terms of capitulation—an honourable retreat to Zenobia, and the reservation of their rights to the Palmyrenians; but a haughty answer was returned by the queen, in the Syrian language, reminding him that Cleopatra, from whom she was descended, refused to live except as a queen, and threatening him with the promised help of the Persians, Saraceni, and Armenians. But Zenobia was disappointed in her expectations about these auxiliaries; and the skilful commissariat arrangements of the emperor obviated the difficulties of procuring subsistence for an army in the inhospitable deserts which surround the oasis of Palmyra. Zenobia felt resistance to be hopeless, when Probus, to whom the re-conquest of Egypt had been entrusted, brought his victorious army to the assistance of the emperor; and she tried to escape, but was intercepted on her way to Persia, and brought to the Roman camp. The soldiers clamoured loudly for her death. Aurelian refused to shed female blood; but he took his revenge on those who had directed her counsels, among whom perished the celebrated Longinus, who had been Zenobia's instructor in Grecian literature. The city surrendered soon after the capture of its mistress, A.D. 273, and was treated with comparative clemency, being neither plundered nor destroyed.

Aurelian was already returned into Europe, when he heard that the Palmyrenians had revolted, and massacred the small garrison of six hundred archers whom he had left in charge of their city. He returned in wrath, and exceeded even his usual ferocity in avenging this ill-judged insult. There is a letter extant written by him to Ceionius Bassus, in which he says, 'The sword must go no farther; enough of the Palmyrenians are slain and cut to pieces. We have not spared women; we have slain infants, old men, husbandmen; to whom then shall we leave the lands and the city? Let those who remain be spared; for we believe that so few may be amended by the punishment of so many.' He goes on to give directions for the restoration of the temple of his favourite deity, the Sun, at Palmyra, which had been damaged by the third legion.

Aurelian was recalled a third time to the East by a rebellion in Egypt, excited by Firmus, a merchant who had acquired immense wealth by commerce in India. This was immediately quelled by the emperor's presence; and having now cleared the Roman empire of all rivals and pretenders to independence, and restored it to its antient limits, he returned to Rome, where he celebrated his various victories with a triumph of more than usual magnificence. The details will be found in Vopiscus, chap. 33, &c.

After this ceremony the emperor visited Gaul and Illyricum; but his stay was short, for in a few months from the date of it we find him leading an army against Persia, to revenge the defeat and degradation of Valerian. On his march between Heraclea and Byzantium he was assassinated, in consequence of the treachery of one of his secretaries, named Mnestheus, whom he had threatened with punishment; and the emperor's threats were known seldom to be made in vain. The secretary forged a list of names—those of the chief officers of the army ostensibly devoted to death; and the restless character of Aurelian caused the fraud to be readily believed, and promptly acted on. The conspirators were those whose stations gave them a right to be near his person; he was murdered in October, 274 (in 275, according



[Gold. Brit. Mus. Double the diameter.]

to some), after reigning from five and a half to six years, according to Vopiscus and Aur. Victor. Gibbon, without quoting his authority, makes it four years and nine months. He left a single daughter, whose descendants remained at Rome when Vopiscus wrote.

Aurelian is not ill-described by Eutropius as of a character 'necessary on some occasions rather than loveable on any; but harsh on all.' Yet he had many qualities noble and valuable in a ruler: he was frugal in his expenses, temperate in his pleasures, moderate in providing for friends and adherents, strict in preserving good order, and resolute in repressing peculation, and punishing those who grew rich on peculation and the spoils of the provinces. But these good qualities were obscured by a temper naturally harsh, and trained by a long and exclusive course of military service into total carelessness for the sufferings of others; insomuch, that the Emperor Diocletian, himself not over inclined to compassion, said on that account that Aurelian was better suited to command an army than an empire. (Vopiscus, in the *Historia Augusta*; Eutropius: Aur. Victor: Gibbon, c. xi.; Crevier, *Histoire des Empereurs Romains*, vol. vi.)

Vopiscus informs us (cap. i.) that his *Life of Aurelian* was founded on Greek authorities (there having been no Latin history of Aurelian before his), and on the Journals and Campaigns of the emperor, which were then kept in the Ulpian Library at Rome.

AURE'LIUS, MARCUS (or, as he is called on his medals and elsewhere, Marcus Antoninus), was the son of Annius Verus and Domitia Calvilla. Verus traced his pedigree to Numa, and Domitia hers to Malennius, a Salentine prince; the fathers of both were consuls. Aurelius was born on Mount Cœlius, in Rome, on the 26th of April, A.D. 121, and was named Annius Verus. Hadrian, with whom he was a favourite from infancy, familiarly called him Verissimus, a distinction which he even then merited. To his natural disposition, habits, and early acquirements, which it is honourable to the emperor to have perceived and cherished, he owed his adoption into the Aurelian family by Antoninus Pius, who was himself adopted by Hadrian, upon condition that he should adopt Annius Verus, and the son of a deceased favourite, L. Ceionius Commodus (called, after his adoption by Hadrian, Ælius Verus Cæsar), who was to have been his successor; this son was named Lucius Verus. [See VERUS.] There was policy, as well as family connexion, in these proceedings. The father of Aurelius dying while he was young, his grandfather took charge of his education, and gave him every advantage which the age he lived in could afford. We learn from himself that he had masters in every science and polite art, whose names and qualifications he has most gratefully recorded, modestly attributing all his acquirements to their instruction and example. (See Book I. of the *Meditations*.) They were all more or less remarkable for rigid observance of the rules of morality, command of temper, polite conversation, and courteous manners, and were all afterwards rewarded according to their merits and just expectations, two of them being raised to the consulate. These men, therefore, were not only tutors, but models upon which the more perfect character of Aurelius was formed; the foundation of which, however, he piously says was laid by his parents. From what he had heard of his father, he learned modesty and manly firmness; from his mother, piety, generosity, and simplicity of life; from his grandfather, virtuous disposition of mind, and

habitual command of temper, &c. For the art of government, and the manners that give dignity to a ruler, he afterwards studied the public and private conduct of Antoninus Pius. Most of his teachers were Stoics. One of the most distinguished of them, Rusticus, procured him a copy of the works of Epictetus, which confirmed his natural inclination to Stoicism, and became his inseparable companions; he delighted in commenting upon them, and thanked the gods for furnishing him with a manual from which he could collect wherewith to conduct his life with honour to himself and advantage to his country. The life and writings of the emperor rank him, indeed, amongst the best teachers and brightest ornaments of the stoical school, and have led his biographers to expatiate upon its merits. It would be out of place here to do more than to acknowledge the general excellence of its moral rules, and their universal application as a system of moral philosophy to the use of men of all ranks and conditions in society. From this circumstance, Stoicism had more followers than any other philosophical sect. Much has been said of its extreme severity: perhaps from some of its followers having overstrained its rules, and adopted practices more rigid than are consistent with nature and conformable to reason; but such men are ascetics, and not Stoics. But, admitting its rules to be laid down in an extreme manner, they stand upon the same footing as certain theories in the exact sciences that find their natural limits in practice. In the lives of Epictetus and Aurelius, the just limits of the rules of Stoicism, and the proof of their utility to men of all conditions in life, may be found. They were equally adapted to the purposes of these two men, who may be called the extreme links of the social chain. The one was the slave of a man freed from every slavery but that of his own vices by Nero, living in the worst of times, with the worst examples immediately before his eyes, and trusting to chance and his own exertions for education. The other was not only a freeman, but born to command, and enjoying every advantage; yet there is nothing in the lives and practices of these two men contrary to nature and social order, and little or nothing more to be required of either of them than what they performed. They were equally remarkable for moral excellence and virtuous conduct in every respect; and they have each left us the rules by which they governed themselves. [See ARRIAN, and EPICTETUS.] The work of Aurelius, which is divided into twelve books, and written in Greek, is generally known by the name of his *Meditations*. There has been much unnecessary cavilling about its Greek title, τῶν εἰς ἑαυτὸν, variously rendered 'of and to himself,' or 'concerning himself.' It is a private note-book, kept for a purpose that the critics would have been better employed in pointing out. Aurelius accomplished the arduous task of passing through a life of extraordinary difficulty and temptation with unblemished character. His son entirely failed in it, not from disability, for he was educated as his father was, and shewed every inclination to walk in his steps, till he became free from his father's observation and control; till then he must have given satisfaction, for his father thanks the gods that he had found proper tutors for his children. We must therefore infer that education and natural inclination are not of themselves sufficient to keep a man in the paths of virtue without an unremitting discipline. The severest and most important rule of Stoicism relates to self-government, and enjoins daily and hourly examination of all our thoughts, words, and actions. This golden rule Commodus neglected. Aurelius always observed it, as his book proves; it was his monitor to keep him to his duty; it fully illustrates the efficacy of stoical discipline, and its effect upon the man himself gives it its peculiar value. Besides this, it contains the history of his education, and a collection of rules, dogmas, theorems, comments, and opinions, put down as they were suggested by passing events, reading, or conversation; sometimes they appear to be preparatives for particular cases in which he expected to be called upon to act or decide. They form no regular series, nor have they any relative order, but they all tend to the purposes of morals, discipline, and self-government. Where not new, they are placed in a new light. They may be considered as a supplement to Epictetus, and the two together form the best code of moral discipline left to us by the ancient philosophers. This book was first edited in Greek and Latin by Xylander, Zürich, 1558, then by M. Casaubon in 1643, much improved; but still more by Gataker, Camb. 1652, with some valuable tables of reference. It was re-edited by G. Stanhope, with Dacier's life,





[Brit. Mus. Brass. Actual size.]





Reverse. Reverse.

[Brit. Mus. Brass. Actual size.]

Lond. 1697, 1704. An edition by J. M. Schulz was published at Schleswig, 1802; and another by Coray, Paris, 1816. The English translations are by M. Casaubon—seven editions between 1634 and 1702; the reader is confused by his explanations of his own language as he goes on: by J. Collier, remarkable for its vulgarity: by J. Thomson, 1747. Anonymous, Glasgow, 1749, harshly literal; and by R. Graves, 1792, said to be the best, but very bad.

The events of Aurelius's life are marked by wise and prudent conduct. He passed through all the offices usually given to persons of his rank and pretensions, and as he most punctually attended to his duty in them, he obtained those facilities as a man of business for which he was remarkable. In his fifteenth year the daughter of Ceionius Commodus was betrothed to him by the desire of Hadrian, but the union was dissolved by Antoninus Pius after Hadrian's death. His adoption by Antoninus Pius took place in his eighteenth year, when he was named Marcus Ælius Aurelius. After the death of Hadrian he married his cousin Faustina, daughter of Antoninus Pius, a lady whose conduct was not calculated to promote his happiness, and though he had ample cause, he refused to divorce her. Upon the death of his new father in 161, he took the name of Antoninus, and immediately associated Lucius Verus with himself as partner in the empire: he also gave him his daughter Lucilla in marriage. This last and highest office Aurelius accepted at the request of the senate, much against his inclination; but having accepted it, he never suffered his fondness for study and philosophic retirement to interfere with his public duty. A troublesome reign ensued, beginning with inundations, earthquakes, famine, and pestilence, causing universal distress, which it required extraordinary exertion to alleviate. The life of a man whose object was peace was almost entirely occupied by war, owing to former emperors having conquered more countries than they could unite in one empire. This was only making as many enemies, open and concealed, as conquests. The safety of the empire, however, now depended upon its keeping all its provinces, for if its inability to do so could be proved, common cause would be made against it, and its destruction would follow. Hence it became the duty of Aurelius to put down the insurrections that broke out in all quarters. This he did by activity, fortitude, and a prudent choice of his lieutenants: he was everywhere victorious; and he took the best means in his power to make his victories effective, by shewing mercy and clemency to the conquered, endeavouring thereby to prove that he was a ruler under whose sway they might live in peace if they pleased. But the spirit of liberty and independence on the frontiers could not be suppressed: all that Aurelius could do was to maintain the integrity of the empire during his reign, leaving the same hopeless task to his successors.

The calamities in Italy were not ended when the Parthian war broke out: Verus took the command in this war, and returned victorious, A.D. 166, but brought the plague with him to Rome. (See VERUS.) Calpurnius Agricola was sent against the Britons, who threatened insurrection; and Aufidius Victorinus against the Catti. The two emperors soon after marched together against the Marcomanni, and obliged them to sue for peace. In returning from this expedition Verus died, B.C. 169. In the year 170 Aurelius was compelled to prepare for a more serious war against the northern nations. During this campaign a battle was fought with the Iazyges on the frozen Danube: and in the year 174 an event happened which has given rise to much controversy, though we have no good account of it. It is said that the army of Aurelius, being unwarily drawn into a defile by the Quadi, was nearly overcome by the attacks of the enemy, whom, from the nature of the place, the Romans could not resist, as well as from fatigue, the unusual heat of the weather, and above all the want of water, which they had not tasted for some days. From this difficulty they were suddenly relieved by a violent storm, that fell lightly on them, and gave them an opportunity of refreshing themselves, while it directed its fury against the enemy, throwing them into confusion, and, as some say, the lightning, to which others add wildfire, actually destroyed them. The Romans took advantage of the crisis, and gained a victory. Upon this, some unlucky legendist, not knowing that the 12th or Thundering Legion, which was engaged in this affair, had its name before it happened, took occasion to call it a Christian Legion, and to attribute the miraculous storm to the efficacy of its prayers and a letter exists from the emperor to the senate acknowledging the fact. This letter is in Greek: no Latin original, or any similar authentic document, can be found, and nobody will believe that Aurelius would insult the senate by writing to them in a foreign language, though it may be argued, as it has been, that this is only the substance of the emperor's communication, and not to be considered as the original. (See the letter in D'Acier's *Life of Aurelius*, Stanhope's ed.) But the internal evidence of the letter is perhaps sufficient to destroy its credit. The heathens are also said to have acknowledged the miracle, and to have attributed it to the prayers of their good emperor. (See Capitolinus, cap. 24.) The Antonine column at Rome commemorates the miraculous shower in the historical sculptures on its shaft. [See ANTONINE COLUMN.]

This letter to the Senate, if genuine, would prove that some kind of persecution had been carried on against the Christians, for the emperor herein declares that they are not for the future to be molested for their religious opinions. There is also another letter, said to be written by Aurelius to the council of Asia assembled at Ephesus, upon the subject of persecuting the Christians. This letter acquits Aurelius, in as far as it forbids persecution, and confines punishment to civil crimes, and not to opinions. (See Euseb. *Hist. Eccles.* iv. 13.) Some attribute it to Antoninus Pius: but the charge of persecution is still maintained against Aurelius, especially in the early part of his reign. It is impossible, however, to reconcile this with his known character and writings. Crevier (iv. p. 453) calls him the author of the fourth persecution against the Christians, but he gives no proof, and admits that the emperor published no edict against them. Marcus certainly appears not to have liked the Christians; perhaps he even hated them. (See *Medit.* xi. 3, and Gataker's note.)

During his long northern campaigns Aurelius crossed the Danube, and brought the Sarmatians to terms. His victories are commemorated on one of the medals which we have given. But the rebellion of Avidius Cassius in the east compelled the Emperor to return to Rome, and to leave the barbarians of the north in a more powerful position than was consistent with the safety of the frontiers.

The clemency, justice, and sound policy of the Emperor were particularly shown in this rebellion of Cassius (A.D. 175), who, after a feeble and unsuccessful attempt to get possession of the empire, was put to death by his own officers. He would not extend the usual penalties to his family, nor suffer many of his accomplices to be punished; he even destroyed his private correspondence, that none might live in fear, and be induced to continue in rebellion as their only safety. He left the whole matter to the senate, as if it had been an ordinary affair, recommending the greatest clemency, as he was most desirous of freeing himself from all imputation of revengeful feeling. [See CASSIUS, AVIDIUS.]

After the death of Cassius, the Emperor made a journey into the east in order to restore tranquillity, which had been somewhat interrupted by the late rebellion. In his visit to Lower Egypt and Syria, he conciliated the good-will and affection of his various subjects by his kindness and his affable manners. During his return through Asia Minor, his wife Faustina, who accompanied him, died at a place called Halale, at the foot of Mount Taurus. Though her infidelity to the Emperor was generally believed, the good-natured prince, who either knew nothing of it or took no notice of it, lamented her loss as if she had been the best of wives, and the Senate, in the usual style of adulation, decreed a temple to her memory, and raised her to divine honours with the title of Diva. Aurelius also instituted a new establishment for young ladies under the title of Novæ Puellæ Faustinianæ, in imitation of that which was created by Antoninus in honour of the mother of the empress. [See ANTONINUS.] We should not omit to mention, in opposition to the accounts of Capitolinus and Dion Cassius, that the emperor extols the obedience, affection, and simplicity of his wife. (*Meditat.* i. 17.)

At Smyrna, the Emperor witnessed a display of the rhetorical talents of Aristides, who pronounced on that occasion his declamation in praise of Smyrna, which still exists among his works. Two years afterwards, when Smyrna was ruined by an earthquake, Aristides prevailed upon the Emperor to extend to its suffering inhabitants the same bounty that he had already bestowed on other cities. [See ARISTIDES, ÆLIUS.]

From Smyrna Aurelius passed to Athens, where he appears to have been admitted into the sacred mysteries of Ceres. During his reign he showed his affection to this antient seat of learning by founding chairs of philosophy for the four chief sects, the Platonics, Stoics, Peripatetics, and Epicureans, and also a professorship of rhetoric.

The close of the philosophical Emperor's life was not spent in the peaceful retirement which he loved, but in the midst of a northern campaign against the Marcomanni, Hermunduri, Sarmatians, and Quadi. His son Commodus accompanied him during these campaigns, which appear to have lasted between two and three years. Aurelius died, B.C. 180, after a short illness, at Vindobona (Vienna), in his fifty-ninth year, having reigned ten years alone, and nine with his colleague. His loss was regretted by the whole empire; he was ranked amongst the gods, and every house in Rome had his statue or picture. One of the medals that we have given, bearing the inscription CONSECRATIO, represents the apotheosis of Aurelius. [See APOTHEOSIS.] Suidas (copying, of course, some of the panegyrists of the emperor) says, 'It is easier to admire his character in silence than to give it due praise. It may all be traced in his book; and whoever will contemplate that will assuredly be the better for it.' (See *Life of M. Antoninus*, by Capitolinus; Herodian, lib. i.; Dion Cass. lib. 71; the various authorities referred to in Gataker's edition by Stanhope; and the uncritical Life of Aurelius by Crevier, *Histoire des Empereurs Romains*, vol. iv.)

AURE'LIUS VICTOR. Four books are commonly published together under the name of Aurelius Victor. 1. 'Origo Gentis Romanæ,' an imperfect work, beginning with Janus and Saturn, and going down to the foundation of Rome. 2. 'De Viris Illustribus Urbis Romæ,' which contains short biographies of the most illustrious Romans, with a few foreigners, from Romulus down to Pompey. 3. 'De Cæsaribus,' which contains the lives of the emperors, from Augustus to the appointment of Julian to govern Gaul, A.D. 356. 4. 'De Vita et Moribus Imperatorum Romanorum,' or Aurelii Victoris Epitome, another history of the emperors, from Augustus to the death of Theodosius the Great, A.D. 395.

That all these are not written by the same person is generally acknowledged; by whom they are written it is harder to say. It is pretty well agreed that the 'Origo' is not written by the same person as the 'Illustrious Men,' or the 'Cæsars;' and some persons, on very slight grounds, have attributed it to Asconius the critic. The 'Illustrious Men' has been variously ascribed to Cornelius Nepos, Pliny the Younger, Suetonius, and the true Aurelius Victor, who is the undoubted author of the 'Cæsars.' Of his life we know hardly any thing: he tells us (*De Cæs.* xx. 5) that he was 'born in the country, of a poor and unlearned

father,' and it is conjectured, from his abundant praises of Africa, that he was a native of that province. The 'Cæsars' seems, on the evidence of a passage written in the present tense, to have been composed about the year 359; and there are other grounds for supposing that Victor was alive at that time. It is said in Ammianus Marcellinus (xxi.) that the Emperor Julian 'appointed Victor the historian prefect of Pannonia Secunda, and honoured him with a brazen statue,' and that some time after he was made prefect of the city. Now there is an inscription extant, from which we learn that Aurelius Victor was prefect of the city in the reign of Theodosius; and it is probable that these two notices refer to the same person. We also know that Aurelius Victor was consul with Valentinian, A.D. 369. This brings us to consider who was the author of the 'Epitome,' which extends to the death of Theodosius. In all the titles prefixed to the MSS. it is mentioned as 'Epitome ex libris,' 'breviatus ex libris,' Sext. Aur. Victoris; and Mad. Dacier thinks that it is really an epitome, taken partly from other sources than the 'Cæsars' of Victor, which she believes to have come to us imperfect, and to have extended to the reign of Theodosius. This opinion is countenanced by there being no formal conclusion to the work as it now stands. Nor is it impossible, nor indeed improbable, supposing Victor to have been in middle life between the years 359 and 369, that he may have lived and continued his work down to the end of Theodosius's reign in 395, where the Epitome ends.

Neither the style nor the contents of these books entitle the author to a high place among historians. The most important portion is that which contains the history of the empire, where the frequent want of all contemporary authority renders a continuous sketch, even though it be a meagre one, of the more value. The editions of Aurelius Victor are numerous: among the best are the Delphin, and those of Schott, Gruner, Arntzenius, &c. The most modern which we have seen noticed is that of Schoenberger, Vienn. 1820 Valpy's Delphin edition (vol. 1) contains a collection of notices from various writers concerning the life of Victor, and the authorship of the works bearing his name. (See also Moller, *Disputatio de Aurelio Victore*, Altdorf. 1805.)

AU'REUS, or DENARIUS AUREUS, the ordinary Roman coin of gold, was equivalent to twenty five silver denarii, or a hundred sestertii.

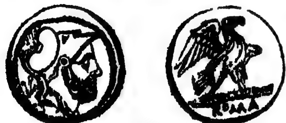
Gold was first struck at Rome in the year of the city 547, or 207 before Christ, in the consulship of C. Cl. Nero and M. Liv. Salinator, sixty-two years after the introduction of the coinage of silver. The earliest coin of gold at this time was named a scruple (scrupulum), and went for twenty sesterces



Scrupulum.

[Brit. Mus. Gold. Actual size]

of that age. (See Plin. *Nat. Hist.* lib. xxxiii. c. 3; edit. Dalecampii, et Variorum. In other editions, c. 13.) It had the head of Mars on one side, and an eagle standing on a thunderbolt upon the other, with the word 'ROMA' below; and was marked XX at the back of the head of Mars. Raper (*Inquiry into the Value of antient Greek and Roman Money, Philos. Transact.* lxi. p. 508) determines the weight of the scruple to have been 17¼ Troy grains, which is the weight of one in perfect condition in the British Museum. Nauzeus, as quoted by Eckhel, (*Doctr. Num. Vet.* tom. v. c. 4.) makes the true weight twenty-one grains and one-third. These, as



A triple Scrupulum.

[Brit. Mus. Gold. Actual size]

it appears, are Paris grains (see Eckhel, v. 4); 17¼ Troy grains being about equivalent to 21⅓ Paris grains. Its double was marked XXXX, or forty sesterces; and its triple ↓X, or sixty, which weighed 52 grains. The symbol which precedes the X on this triple scruple, indicates L or 50: Eckhel shows, that on the denarii of Tib. Claudius, and in other cases, the Romans represented 50 by a symbol very like an inverted T.

Pliny proceeds to say that it was afterwards usual to coin forty pieces out of the pound of gold (larger in size, of course, bearing the general name of Aurei), and that the Roman emperors by degrees made them forty-five to the pound. In a passage, the corruptness of which is more than suspected, some of the texts ascribe this last change to Nero.

Alexander Severus coined pieces of one-half and one-third of the aureus, called *Semissis* and *Tremissis* (Æl. Lamprid. *in Alex. Severi Vita*, cap. 39), whence the aureus came to be called *solidus* or *solidus aureus*, as being the integer.

Soon after the reign of this prince the coinage became very irregular, till Constantine entirely new-modelled it by coining aurei of seventy-two to the pound of gold (see the *Codex Theod.* de Ponderatoribus, § 1. *Cod.* Justin. l. x. tit. 70. de Susceptoribus § 5.); a more convenient number than either forty or forty-five, as it divided the ounce and half ounce without a fraction.

Eckhel from Nauzeus (*Doctr. Num. Vet. ut supr.*) divides the variations of weight of the aurei between the year 517 of Rome and Caracalla's time into eight epochs, varying in the respective coins from 153 to 128 (Paris) grains. That the estimates are correct may be gathered from the following facts, ascertained from aurei, or gold denarii, all in a state of high preservation in the British Museum. An aureus of Julius Cæsar weighed 123 grains, which is exactly the weight of an English sovereign. Out of twenty-five gold denarii of Augustus, one weighed 115 grains, five weighed 120 grains each, three 120½, four 121 grains, four 122, and one 127. Of fifteen aurei of Nero, four weighed 113 grains, two 114, two 116, two 118, one 119, one 120. An aureus of Maximianus II. weighed 81 grains, Carausius 67, and Maxentius 79. The coin of Carausius, of which a copy is here given, is believed to be unique. The Rev. Mr.



[Brit. Mus. Gold. Actual size]

Cracherode, who bequeathed it to the British Museum, bought it at the price of 150*l*. Of the aurei of Constantine in the Museum, one weighed 66 grains, three 67, three 69½, one 73½, and one 81½. The highest weights are possibly of coins struck before Constantine's re-arrangement of the coinage. All here mentioned, as far as can be ascertained, are of gold without alloy.

The average weight of the aurei of Augustus, then, appears to have been nearly 121 grains; that of Nero's aurei nearly 117.

Raper says the Consular aurei weighed at a mean 126 grains. Some of the Family aurei in the Museum weigh 122, 124, and 125 grains.

The following is Letronne's table of the mean weight of Aurei, transferred into Troy grains:—

	French gr.	Troy gr.
J. Cæsar	153.25	125.73
Augustus	148.71	121.97
Tiberius	145.7	119.53
Caligula	141.5	118.55
Claudius	144.6	118.63
Nero	139.5	114.44
Titus	137.3	112.64

(See Letronne, *Considérations générales sur l'Evaluation des Monnaies Grecques et Romaines, &c.* Paris, 1817. 4to.)

Victors in the chariot races were usually rewarded with aurei. (See Suetonius, *Claud.* cap. 21. § 10. Juv. *Sat.* vii. 243.) The Scholiast observes that no more than five were allowed to be given in such cases. (Buleng. *de Circo*, c. 55.) The fee (probably the maximum) to a lawyer was *centum aurei*, see Ulpian (D. i. 12. *de extr. cognit.*) A single aureus was all that Justinian permitted to be risked at dice. (Cœl. Calcagninus *de Talorum Tess. et Calc. Ludis, ap.* Græv. *Thesaur.* tom. vii. col. 1228.)

The reader who wishes for information upon the aureus,

beyond what is here given, may consult Pitiscus, *Lexicon* i. p. 220 *in voce;* Eckhel, *Doctr. Num. Vet.* tom. v.; Pinkerton, *Essay on Medals*, vol. i. p. 144; and Raper's *Inquiry*, already referred to.

AURICH, at present a landdrostei, or province, of Hanover, formed, in antient times, the eastern part of the land of the Frisii, and at a more recent date the principality of East Friesland. It is the most north-westerly point of Germany, and is bounded on the west by the kingdom of Holland and the bay of the North Sea, into which the Ems discharges itself; on the north by the North Sea; on the east by the Grand Duchy of Holstein-Oldenburg; and on the south by the territory of Meppen. The whole surface of the province is so complete a flat, that the Plotenberg, the highest land, does not exceed sixty feet in elevation above the sea. The districts adjacent to the North Sea, which washes nearly one half of its frontier, are the most fertile marsh-land in the Hanoverian dominions. They are separated from the interior of the province, which is a series of moors and heaths, by a tract of sand between two and three miles in breadth; on the sea side, they are protected against the ocean by a rampart of artificial dykes, twenty-four feet high, and nearly one hundred miles in length. The larger villages in this marsh land are built upon eminences, thrown up by the natives; they are clean and airy, but destitute of trees or other natural shelter. The tenements in the more barren districts are scarcely superior to the Hottentot craals. The area of Aurich is estimated at 1134 English square miles; of this the industry of the inhabitants has converted 351,202 Friesland dimats, out of 525,202, into cultivable land; 49,000 more are barren heath, and the remaining 125,000 are moors, which produce turf for fuel. The whole extent of woodland is not more than 6800 morgen; about 4330 acres. The Ems traverses the province in the south, and in the middle of its course receives the Leda, after its waters have been increased by the Jümme. The coast is fronted by banks of sand, varying from four to nine miles in breadth, and covered by the tide at high-water: their outer margin is dotted with a chain of islands, which are nothing more than masses of sand thinly coated with grass, and tenanted by the poor fisherman and his family, whose wretched hovel is exposed in high winds to the inroad of the waves. Nordeney, the central island in the chain, is partially visited in the summer months for the purpose of sea-bathing. These islands occupy about sixteen square miles of the whole area of Aurich. The province consists of six bailiwicks, or circles, and contains five towns, among which are Emden, Leer, and Norden; 145 parishes; and, as appears by the census of 1833, 152,408 inhabitants, who, with the exception of four congregations of Roman Catholics, and as many of Mennonites, are of the Protestant faith. They are considerable growers of grain, particularly oats and rapeseed; breed great numbers of horses, sheep, and cattle; make much honey; and are actively engaged in foreign commerce and the herring-fishery on the Scotch coast. Their export of the native produce of the country is to the amount of 150,000*l.* a-year and upwards. The unmoveable property of the province producing income has been estimated at 60,416,600 dollars (about 8,311,900*l.*), and the moveable at 4,457,718 dollars (about 606,270*l.*, which give a total of 8,918,170*l.*) Its gross return of produce sold is computed at 7,666,531 dollars, or about 1,054,140*l.* per annum.

There are no people in Europe who showed greater jealousy of their independence in past times, and displayed nobler courage in asserting it, than the East Frieslanders. There was a time, indeed, when they gloried in styling themselves, pre-eminently, 'the emperor's free subjects;' and they were every way deserving of this title until they suffered their leaders to surrender their liberties into the hands of the Zirksena family, in the middle of the fifteenth century. From this period, until the year 1657, that family ruled over it as counts, and subsequently to the latter date, as princes of the empire. The Zirksenas having become extinct in 1744, East Friesland was taken possession of by Frederic the Great: in 1806, the French separated it from the Prussian dominions and annexed it to Holland; and nine years afterwards Prussia, having re-established her right to it, ceded it to the king of Hanover, who incorporated it with his states under the name of the Landdrostei of Aurich.

Aurich contains twelve circles, viz. Aurich, Berum, Emden, Esers, Friedeburg, Yemgum, Leer, Norden, Pewsum, Stickhausen, Veeden, and Vidmund.

AURICH, the capital of the province, as well as of one of the twelve circles into which the province is divided, is an open town, situated on the Treckschuiden canal, which unites it with Emden, from which it is about fifteen miles distant in a north-easterly direction. It is neatly built in the Dutch style, and is embellished with a handsome old palace, the residence of the former princes of East Friesland, but now appropriated to the use of the Landdrostei, or general government of the province. It is the seat of justice and place of judicial record for the province, as well as of the Protestant Consistory, and once possessed a mint, the coin struck in which was stamped with the letter D. There are a handsome market-place, three churches, a high school or gymnasium recently erected, a poor and orphan house, four public libraries, and a seminary for the education of midwives, in the town. It contains nearly 500 houses, and between 3200 and 3300 inhabitants, who depend upon internal traffic, particularly in horses, and a few manufactories of brandy, leather, tobacco, tobacco-pipes, and paper, for their chief subsistence. The canal, of which we have spoken, is forty feet broad, has three sluices, and is crossed by nine bridges. Aurich lies in 53° 28′ N. lat., and 7° 28′ E. long.; about 120 miles in a direct line N.W. of Hanover. The neighbouring village of Rahe is the site of the celebrated Upstalsboom, or national assembly, which the Frieslanders held in former days.

AURIC'ULA, in horticulture, a kind of primrose, found wild abundantly on the Swiss Alps, where its flowers are usually of a clear bright yellow; they are sometimes white, but this is unusual. It has for centuries been an object of cultivation by florists, who have succeeded in raising from seed a great number of varieties having but little resemblance to the wild plant except in foliage. Instead of yellow or white there is substituted a centre of deep purple or brown, surrounded by a broad edge of a white, grey, or green powdery matter, or the whole corolla is of some uniform colour, such as purple, deep violet, or even green; the latter are technically called *selfs*, and although more beautiful than the powdered kinds, are less esteemed by florists.

In these plants the great object of the grower is to obtain large clusters, or *trusses*, of flowers, and clear, well-defined colours; and the value of a variety is determined by its excellence in these respects. All the kinds have been procured by sowing seeds, but there is no flower which produces more seldom a new variety of merit: and it often happens that out of some thousand seedlings not one is sufficiently remarkable to be worth preserving.

Many books have been filled with directions for the management of the auricula, and these directions have been given so fully, that one hardly knows which to admire the most, the laboriousness of the writers, or the patience of their readers. As usually happens, the rules for the cultivation of auriculas may be reduced to a very few fundamental principles, the application of which may be safely left to the good sense of the grower.

The first consideration is under what circumstances the auricula grows naturally. It is found on the mountains of all the south and middle of Europe, especially on those of Switzerland. In those places it might be supposed that it experiences intense cold in winter; but this is probably not the fact, for it is covered early in the winter with a thick coat of snow, under which it lies buried till the return of spring, protected from the severest cold, and screened from the stimulating effect of light. When the snow melts, it begins to feel the excitement of brilliant light, and to unfold beneath a pure and equable atmosphere, perpetually refreshed by the breezes that blow over it, and rooting into rich vegetable mould which is kept continually damp by the melting snow, but never becomes wet, on account of the steepness of the situations in which the plant delights to dwell. Under the same circumstances they flower and perfect their seeds; the drier weather of summer arriving, they cease to grow with vigour, and in the autumn have reached a state of complete torpidity; they never, however, become absolutely dry, because of the rains and storms to which the auricula is necessarily exposed in its Alpine situation. To imitate these conditions, the cultivator in the plains must have recourse to artificial means; the protection afforded by snow he provides by a frame covered with glass sashes and sheltered by mats. When the plants begin to grow in March or the end of February, the natural moisture of their mountains is supplied by gentle watering; they are left entirely exposed to light and air all day long, except in cold or stormy weather; and they are supplied with

more and more water as their leaves become large enough to consume it. The pots in which they are planted are half filled with fragments of pottery in order to ensure the free escape of the water which the plants do not consume. At last, in April, the flowers are about to expand; that period has arrived towards which the anxious hopes of the cultivator have been so long directed; the leaves are fully formed, and are ready to nourish the delicate blossoms that have sprung from their bosom; but a shower of rain or a storm of wind would deface the delicate surface, and tarnish the soft velvety colours in which the beauty of the auricula consists. Greater precautions than ever are now taken; for a few days the sashes are never removed from the frames; they are only elevated at the back to admit the free air, and screened by mats or awnings from the direct rays of the sun. At last the development is completed; the corolla displays its rich surface, and all that care and skill can accomplish has been effected: to remain, however, in a frame but imperfectly ventilated and constantly shaded, would soon destroy the freshness of the colours, produce a general relaxation of the parts, and the blossoms would quickly perish. As soon therefore as the flowers begin to open, the pots are taken from the frame, are placed on slates or boards on the north side of a wall or hedge, and are screened by hand glasses propped up by pieces of brick or wood so as to admit a free circulation of air, and provide against injury from rain or sun.

When the flowering is past, the auricula has fulfilled its annual function; and even if seeds are required, no further care will be necessary than to place the plants in a northern aspect, in a spot where they are not exposed to constant wet, and where the drainage which they would have on their native rocks is amply provided for; many persons keep the pots continually on a stage or on tiles, so as to prevent their attracting too much damp from the soil. At last the auricula will sink to rest: seeds will be ripened, its leaves will have laid up new matter to form flowers the succeeding year, and the powers of life will be exhausted; but a winter's rest will enable it in the succeeding year to recommence its annual course with renovated strength.

The main points in the cultivation of it, with reference merely to the preserving the plants in a healthy state, are, moisture, drainage, protection from cold, and full exposure to light and air: if these are properly attended to, no auricula plant can be unhealthy, or fail to flower well; for the leaves will be enabled to execute all their vital actions fully and regularly, and this will ensure the well-being of all the other parts.

But the florist will not remain satisfied with keeping his plants merely in health; he requires a vigour altogether preternatural, and he would have a hundred flowers where nature unassisted forms but ten; as many as 127 have been obtained in a single cluster. For this purpose rich and stimulating manures are applied; and the most disgusting refuse of the animal world has been ransacked for materials upon which the auricula may feed and grow strong. The whole theory of manuring is at present so ill-understood, that it is difficult to say what material is best suited for the purpose: all that we really know is, that manure acts simply by forming carbonic acid, which is the food of plants; and one would suppose, that whatever forms carbonic acid most readily and constantly would be the most efficient manure. This no doubt explains the cause of the different opinions that are held concerning the best manure for the auricula. One person recommends blood; a second, goose's dung; another, night-soil; a fourth, cow-dung; and a fifth mixes all these together: the only thing the growers seem agreed upon is, that the manure, whatever it be, should be thoroughly incorporated with loam and light vegetable mould, and be in a state of entire decay. One of the latest writers on the subject recommends the following compost:—'One barrow of rich yellow loam, or fresh-dug earth from some meadow, or pasture, or common, with the turf well rotten; one barrow of leaf mould; one barrow of well-decomposed horse or frame dung; one barrow of cow-dung, two years old at least; and one peck of river-sand, not sea-sand.' (Hogg, *Supplement to a Treatise on Flowers*, p. 166.) Besides this, it is found advisable to apply a small quantity of liquid manure three or four times during the growing season; water in which sheep and horse dung is dissolved is usually employed for this purpose. It would be worth trying the effect of putrid yeast, which is the most active stimulant of vegetation that has yet been discovered; but if this material be used, it should be diluted with water till it acquires the colour and fluidity of small beer.

By means of agents, such as have just been described, an extraordinary degree of vigour is sometimes infused into the auricula, and splendid flowers are the result; but it is said that such plants are short-lived, and that they rarely recover the effects of the excessive excitement to which they have been subjected.

The propagation of the auricula takes place by its lateral offsets, which are produced more or less abundantly according to the healthiness of the individual or of the variety. In the spring, when the plants begin to grow, these offsets will readily form roots, for it is then that their vital powers are in their greatest activity; it is at that period, therefore, that the propagation of the auricula should take place; the offsets should be carefully cut from the mother plant, potted in light rich earth, and placed under a hand-glass until they have established themselves; as soon as that has taken place, the hand-glasses should be lifted up and air freely admitted to the young plants, which will, however, still require to be shaded and kept slightly moist, for reasons which the reader will find explained under the article HAND-GLASS.

All plants cultivated in pots are placed in a most unfavourable condition for growing vigorously and remaining in a healthy state; they not only exhaust the soil, but contaminate it by their excretions, and their roots have no means of seeking fresh food, or of avoiding that which is pernicious to them. [See POTTING.] The only remedy for these evils is to free the roots once a year from all the soil in which they have grown, and to re-pot them in rich uncontaminated soil. This operation should be performed at the same time and in the same manner as is recommended for offsets.

New varieties of the auricula are procured exclusively by sowing the seed; and if this were judiciously saved, a large number of all seedlings would possess sufficient beauty to deserve preservation. In the words of one of the most successful of its cultivators, the auricula 'is to be bred as high as a race-horse, by a corresponding attention to pedigree; so little attention is however paid to the true principles of 'high-breeding,' that many persons fail to procure a single good variety from some thousand seedlings. What a grower who would breed auriculas, or any other flowers, should bear in mind, are these maxims:—

1. All plants that have been obtained by artificial means, have a tendency to return to that wild state from which they have been reclaimed.

2. This tendency is particularly strong when they are raised from seeds, and will be great in proportion to the deviation of the parent plant from the most highly-cultivated state.

3. But the tendency may be counteracted by continually selecting the finest and most highly-bred flowers to yield seeds.

4. The latter are, however, open to the influence of other and inferior varieties, provided they are placed near them at the flowering season.

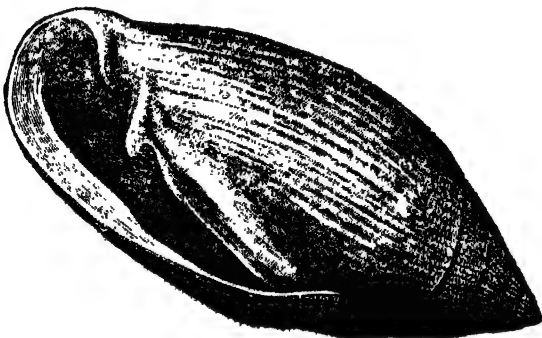
5. Especial care should therefore be taken, not only to select for yielding seed the most beautiful flowers of the most perfect varieties, but also to prevent the possibility of wind or insects conveying among them the pollen of inferior specimens.

The seed should not be sown as soon as it ripens, but should be kept in the seed-vessel till the succeeding February or March, when it should be placed in light vegetable mould in earthen pans in a hot-bed frame, and subsequently treated like other seeds of a similar nature.

The marks of a good auricula are, in the opinion of English florists, these:—the flower should consist of four principal parts, namely, the tube, the eye, the ground colour, and the border. The tube should form one-sixth of the whole diameter; the eye, including the tube, one-half; and the ground colour, with its border, the other half. The nearer the face of the flower approaches a true circle, the more perfect is it to be esteemed, and *vice versâ;* starry flowers, that is to say, such as have the lobes of the flower very distinct, being the worst. The mouth of the tube should be well filled by the anthers; the eye should be a little sunk below the mouth of the tube, and of a clear even white; the ground colour must be deep and rich, and well defined next the eye, but towards the border it is to break off regularly and symmetrically into the edging, which

must in its turn be separated most exactly from the white border. (See Maddock's *Florist's Directory*, by S. Curtis, 1822; Hogg's *Supplement to a Treatise on Flowers*, 1833; Kannegiesser's *Aurikel-flor*; and Ranft's *Bemerkungen über die Cultur, &c. der Aurikel.*)

AURI'CULA (zoology), a genus of phytophagous or plant-eating trachelipods, whose organs of respiration are formed for breathing air. Cuvier observes, that the species of this genus differ from all the pulmoniferous aquatic mollusks which precede them in his system in having the columella or pillar of the shell marked by large plaits. It is curious to observe the progress of an animal, in the infancy of science, towards its natural place among created beings. Linnæus placed the *auriculæ* known to him in his genus *voluta*, which comprised mollusks that can live only by respiring water, and others which can only breathe air, and would die if immersed for any length of time in the water; in short, the presence of plaits on the pillar of a shell was sufficient to induce Linnæus to place it among his *volutæ*. Bruguières took the *auriculæ* from this heterogeneous mass, and placed them among his *bulimi*, a genus whose organs of respiration are fitted for breathing air only; and Lamarck, struck with the great development of the plaits on the pillar, and suspecting from that structure a particular organization of the animal, formed from the species so distinguished his genus *auricula*. Cuvier adopts Lamarck's genus, though he is uncertain whether the *auriculæ* live in marshes like the *limnææ*, or merely on their borders, like the *succineæ*. The probability is, that the *auricula* lives in the neighbourhood of rivers, lakes, or morasses, and that its respiratory system, though formed for breathing air, is so framed as to enable it to sustain any vicissitudes which such a locality might render probable. *Auricula Midæ* (Lam.), *voluta auris Midæ* (Linn.), the *Midas's ear* of collectors, is a good example of the genus.



[Auricula Midæ.]

It is said to be an inhabitant of the East Indies. Lamarck also names the Moluccas as its locality.

The following is the generic character:—Shell somewhat oval, or ovate-oblong; aperture longitudinal, narrowed above, and with the base entire; pillar with one or more plaits; outer lip either reflected or simple and acute.

The true *auriculæ* are the inhabitants of warm climates. There is one in the south of France, near the shores of the Mediterranean (*auricula myosotis* of Draparnaud), but it is a small species.

AURI'GA, the Charioteer, a constellation situated between Perseus and Gemini. It is represented as a man holding a bridle in the right hand and supporting a goat and kids on the left arm. The star in the body of the goat, called Capella (and Alioth by the Arabs) is of the first magnitude, and presents the best guide to the constellation. There is no satisfactory account of the mythology of this figure. It is said to have been the Horus of the Egyptians; among the Greeks, the human figure is by different writers called Erichthonius, Bellerophon, Hippolytus, &c.; while the goat is Amalthæa, the foster-mother of Jupiter. But this explanation is even more unsatisfactory than most others, owing to the want of apparent connexion between the figures of the group.

The star Capella never sets in the latitude of Greenwich, and is in the line drawn through the higher two (α and δ) of the four stars which form the body of the great bear. It is on the meridian at six P.M. early in March, and at midnight in December.

The following is the nomenclature of the principal stars Those in parentheses are from Piazzi.

Character.	No. in Catalogue of		Magnitude.	Character.	No. in Catalogue of		Magnitude.	Character.	No. in Catalogue of		Magnitude.
	Flamsteed, Piazzi.	Astron. Society.			Flamsteed, Piazzi.	Astron. Society.			Flamsteed, Piazzi.	Astron. Society.	
ι	3	570	4	*l*	26	687	5		55	826	6
ω	4	574	5	ξ	30	718	5		63	880	6
ε	7	580	4	ν	32	714	5		64	892	5
ζ	8	582	4	δ	33	733	3·4		65	902	5
η	10	588	4	β	34	735	2		(42)	629	6·7
μ	11	608	5	π	35	736	5		(43)	784	7
α	13	611	1	θ	37	738	4		(62)	636	7
a	14	612	5	κ	44	774	4		(63)	637	7
λ	15	621	5	*d*	46	789	5		(136)	674	6·7
	22	634	7	*z*	48	800	6		(211)	561	6·7
φ	24	650	5	*c*	49	817	6		(256)	727	6·7
χ	25	661	5		54	822	6		(287)	743	7

AURIGNY. [See ALDERNEY.]

AURILLAC, a town in France, capital of the department of Cantal, one of the two departments into which the former province of Auvergne has been divided. The town is situated in a picturesque valley, watered by the river Jourdanne, and stands on the bank of that river, a little above its junction with the Cère, of which it is a tributary. (The Cère is a feeder of the Dordogne, which, uniting with the Garonne, forms the Gironde.) Aurillac is 332 miles south of Paris by the road through Orleans, Limoges, and Uzerche: but judging by the map, there must be a much nearer road through Fontainebleau, Briare, Nevers, Moulins, and Clermont.

Aurillac is built on a spot where the lava, so abundant in Auvergne, is covered with calcareous deposits. The town is not of very antient date. It is said to owe its rise to a Benedictine monastery, founded here by St. Geraud, in the ninth century; the monastery was celebrated not only for the sanctity, but also for the learning of its inmates, who had here a famous school. The successors of Geraud in the abbacy were lords of the town, and took from it the title of count. They had almost episcopal power.

Aurillac has wide but irregular streets, which are kept clean and fresh by running streams. The town itself was walled and had six gates. As later authorities do not mention these, it is likely they have been pulled down. It had a collegiate church, which was partly destroyed by the Calvinists: the remains show the great extent of the building. There are three suburbs, viz. Fauxbourg St. Stephen, Fauxbourg des Frères, and Fauxbourg du Buis. Prior to the Revolution, Aurillac and its suburbs possessed several religious houses. In the suburb of St. Stephen is a castle on an elevated situation which commands the town. The suburb des Frères (which was larger than the town itself) took its name from two convents which were in it: there were also two nunneries in the same quarter, and a Jesuits' college in the city, besides the foundation of St. Geraud already noticed, which was secularized by the Pope Pius IV., in 1561 or 1562, and the monastery changed into a collegiate church. There is a *collège* or high school, also a society of agriculture, arts, and commerce. The theatre is considered to be too large and too much ornamented for the capital of so poor a department. At the lower part of the town, along the river, is the public walk called *Le Gravier*, pleasant in the day-time, but unhealthy in the evening, owing to the vapours which arise from the river.

The manufactures carried on here are of common and letter-paper, copper, household utensils, and leather; the chief trade is in cattle, cheese, stockings, tapestry, and lace. The inhabitants amount to 9500.

At an early period, and for several centuries, the townsmen are said to have enjoyed a considerable degree of freedom, and to have met for the purpose of choosing magistrates, who bore the title of consuls. Aurillac suffered considerably during the civil wars of France, of which religion was the cause, or pretext. It was besieged by the Protestants; and after this siege, lost the municipal freedom which it had formerly possessed, and received a governor appointed by the king of France.

Aurillac has produced several persons of note; among them Gerbert, elevated to the Papacy under the title of Sylvester II.; Cinq-Arbres, a Hebraist of some note in the sixteenth century; the Maréchal and Cardinal de Noailles; Piganiol de la Force, author of an account of France; and J. B. Carrier, infamous for his atrocities at Nantes during the revolutionary period.

There are some basaltic columns in the immediate neighbourhood of the town, and in the suburbs are two mineral springs.

Aurillac, as already noticed, is capital of the department. The arrondissement or sub-prefecture of Aurillac extends over 796 square miles, or 509,440 acres, and has a population of about 95,000. (*Dictionnaire Universel de la France*; Piganiol de la Force; Malte-Brun; Balbi.)

AURO'RA BOREA'LIS, or *northern day-break*, so called because it usually appears at or near the north, and presents a light somewhat resembling that which precedes sunrise.

The phenomena attending the *Aurora Borealis* are so various, in almost every particular, that no general definition can be given, and till more is known on the subject, any remarkable luminous appearance, towards the northern side of the horizon, taking place between sunset and sunrise, must be considered as entitled to that name. The following description, extracted with abridgment from the French Encyclopædia, and enclosed in [], is an account of the most remarkable appearances of the kind.

[In the northern region of the horizon, but often towards the east or west, a horizontal cloud (nuée) rises to some degrees of altitude, rarely more than 40°. Sometimes the blue sky is seen between this cloud and the horizon. It extends along an arc varying from 5° to 100°, sometimes more. It is sometimes whitish and brilliant, but often black and thick. Its upper edge is luminous and irregular, sometimes nearly parallel to the horizon, sometimes curved towards it. The higher part of the cloud has frequently a white and shining edge. After shooting a number of streamers, the darker part of the cloud generally changes, and becomes very luminous. The streamers continue to be shot from the upper edge, sometimes at some distance, sometimes very close to each other. Their light is very dazzling, and might lead a spectator to imagine he saw a shining liquor forced violently out of a syringe. The light is strongest, and the streamer narrowest, near the main body of the phenomenon. Columns of light issue upwards from openings in the main cloud, with a slow and uniform motion, becoming broader as they proceed. Their dimensions and



[Aurora Borealis.]

time of duration are various; they are whitish, reddish, and sometimes blood-coloured, and after some time the appearance of the whole rainbow, as to colour, is presented. When several columns, emerging from different points, meet at the zenith, a small and dense meteor is formed, which appears to burn with more violence than either column by itself. This meteor is green, blue, or purple, and afterwards proceeds towards the south in the form of a small and clear cloud. When the columns cease, the first-mentioned horizontal meteor has little more than the appearance of morning twilight, and gradually disappears. The phenomenon lasts sometimes all night, and has sometimes been observed many nights in succession. The horizontal meteor sometimes keeps its place and its appearances unchanged for several hours. Sometimes the whole consists in nothing more than a gradual increase of light in the horizontal meteor, and the whole has been known to take place in a few minutes.]

It is evident that the preceding account relates only to the auroræ which are seen in very northern latitudes, where such phenomena are most frequent and most splendid. To show what has been seen in our own zone, we subjoin, from the work of M. de Mairan on the subject, the two most dissimilar appearances which we can find.

The aurora represented above was seen at Breuillepont, in Normandy, nearly in the latitude of Paris, September 26, 1726. It consisted entirely of streamers of light, as here represented, without any darker meteor.

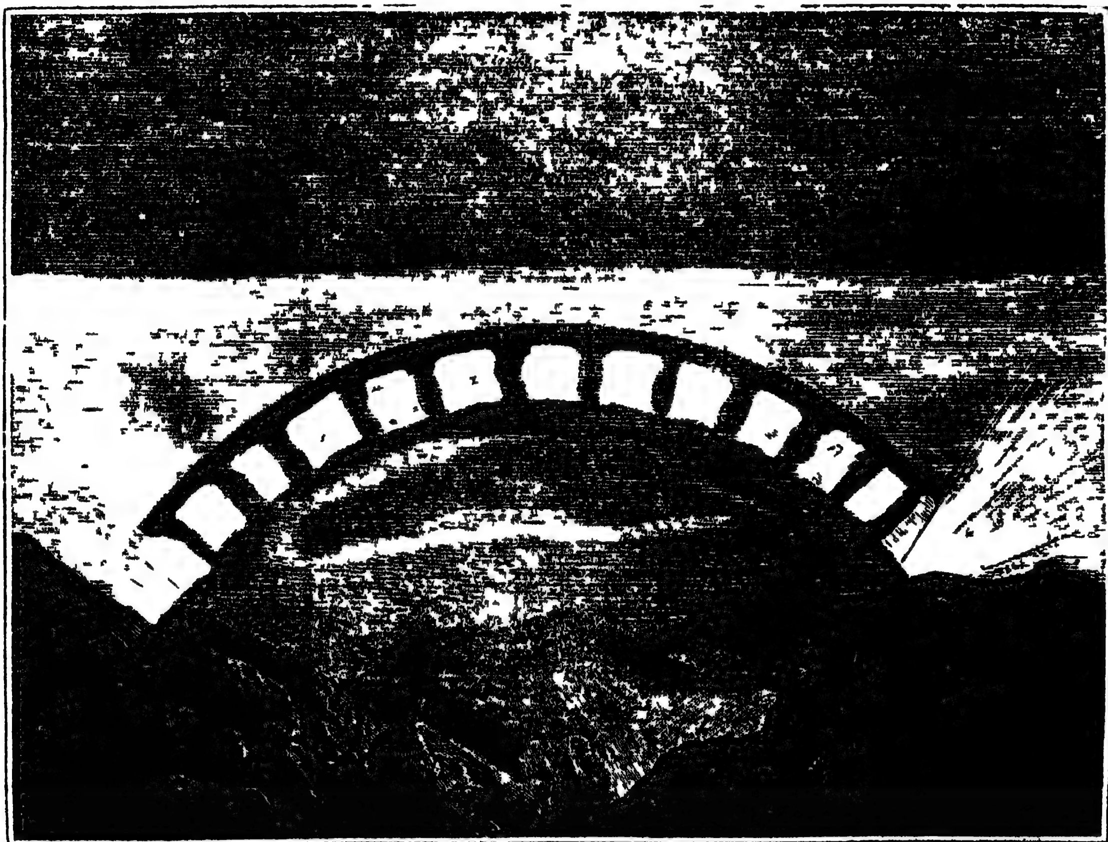
The curious phenomenon represented on the opposite page was observed for several minutes, during an aurora which appeared at the same place, October 19, 1726.

The aurora borealis has been observed in almost every part of the world, but the frequency of its occurrence has varied remarkably from century to century. In England, hardly one such phenomenon appeared in the seventeenth and earlier part of the eighteenth century. Before that of 1716, according to Halley, no such thing had been recorded in England for more than eighty years, and none of any magnitude since 1574. No appearance is recorded in the

Transactions of the French Academy of Sciences, between 1666 and 1716 One recorded in the Berlin Miscellany for 1707 is called a very unusual phenomenon; and the one observed at Bologna, in 1723, was stated to be the first which had ever been seen there.

In the northern regions the frequency of the Aurora Borealis, as seen by travellers, led many to conclude that it was almost, if not quite, perpetual. But Celsius, who published, in 1733, 316 observations made in Sweden between the years 1706 and 1732, affirms the contrary expressly, and says that the oldest inhabitants of Upsala considered the phenomenon as a great rarity before 1716. Anderson, a native of Hamburgh, who wrote on the subject about the same time, says, that in Iceland the inhabitants themselves were greatly astonished at the frequent recurrence of the Aurora, which began to take place. Torfœus, the historian of Denmark, himself an Icelander, who wrote in 1706, was old enough to recollect the time when the Aurora was an object of terror in his native country.

It was at one time thought that the Aurora Australis (as we must call it) was never seen in the southern hemisphere The first account of any such appearance was given by Don Antonio Ulloa, to M. de Mairan The former being at Cape Horn in 1745, and in one of the thick mists, which he describes as common in that climate, saw, whenever the mist cleared off, a light on the southern horizon, to an elevation of about thirty degrees, sometimes of a reddish colour, sometimes like the light which precedes moon rise, but occasionally more brilliant. In 1744 an Aurora appeared at Cuzco, which very much terrified the Peruvians, who could with difficulty be persuaded by the Spanish governor that it was not a mark of divine displeasure.



[Aurora Borealis]

To go back to older times, the Aurora is described by Aristotle (cited by Mairan), as an appearance observed by night in calm weather, and resembling flame mingled with smoke, or the distant appearance of burning stubble He remarks that the predominant colours are purple, bright red and blood colour. from all of which, as well as from the whole description (see his work on Meteors, book i chapters iv and v), there can be no doubt that he faithfully described the subject of this article.

Cicero, Pliny, Seneca, and various more modern writers, make allusions to, or descriptions of, similar phenomena, and there can be no doubt that the fiery appearance of armies fighting in the heavens, described by so many authors as having preceded remarkable events, must have been Auroræ Boreales, heightened by the same force of imagination which converted comets into swords and other weapons And the general terror which such appearances seem to have excited may be considered as adding a presumption to the evidence already produced, that the Aurora Borealis did not by any means occur so frequently before the eighteenth century, as it has done since

In the work of M de Mairan, already cited, which is up to its date of publication (1754), a complete collection of all that was known we find a table of all the recorded Auroræ from A D 583 to 1751 All the observations, including those of the same phenomenon by different observers, are 2137 in number; containing 1441 distinct phenomena These are as follows.—

From A D	to	A D	Number of Auroræ recorded
583		1354	26
1354		1560	34
1560		1592	69
1592		1633	70
1633		1684	84
1684		1721	219
1721		1745	961
1745		1751	28

Of these, the numbers observed in the different months were as follows

January,	113	July,	22
February,	111	August,	84
March,	202	September,	172
April,	124	October,	212
May,	45	November,	1[illegible]
June	22	December,	15[illegible]

During the winter half of the year, 972
Summer . . . . 469—

nearly in the proportion of 2 to 1

The great paucity of phenomena in the earlier part of the first list doubtless arises mostly from want of records but partly it may be presumed, from the fact that many more observations were latterly made in northern climates

The mean height of the Aurora Borealis was placed by Mairan at 175 leagues (French), but his means of ascertaining this point were very imperfect Mr Dalton, from later sources, concludes the average height to be about 100

miles That the phenomenon is really atmospheric and not astronomical, is presumed from the diurnal rotation of the earth producing no effect upon its apparent position It has been placed by some above the atmosphere, and Euler supposed it to be at the height of more than 1000 miles above the earth

The position of the Aurora has, in a majority of cases, been rather towards the west than the east, and it is more frequently seen in calm than in windy nights Among the great variety of detached remarks which have been made upon its attendant circumstances by different observers, we may notice the following assertions that there is always a copious deposition of dew during the phenomenon—that in the English Channel a hard gale from the south or south-east may be expected within twenty four hours—that in northern climates very brilliant instances frequently succeed a sudden thaw after very cold weather but as we have yet no satisfactory theory on the subject it would be useless to multiply such observations and we only give these to remind the casual observers of such phenomena, that all the meteorological circumstances attending them are considered worth noting down

The rise of the auroral arches is mostly from N W to S E, but Professor Forbes in 1826 traced one from the N E through the zenith till it vanished nearly on the horizon in the S W This arch did not move in the direction of the magnetic meridian, and was diametrically against the wind (See *Reports of the British Association*, vol i p 256)

The Aurora Borealis is said to be frequently accompanied by sound which has been variously described as a hissing a murmuring a rumbling and a crackling noise M Mairan never could hear anything of the kind but so many positive assertions have been made by other observers, that little doubt can be entertained of the occasional happening of this phenomenon Pliny speaks of a noise of arms and sound of trumpets heard in the air

The influence of the Aurora upon the magnetic needle must now be considered as an ascertained fact It was first measured by Wargentin in 17[illegible]0 but Halley and Celsius had previously noticed a similar circumstance At the same time it does not appear that in every instance the effect takes place Much discussion has arisen from the fact, that while in one place the needle is violently agitated, in another it is not disturbed at all. In one instance the variation of the needle has been detected at a place where the Aurora was not visible, though it was seen in other parts [See MAGNETISM]

Our knowledge of the electrical phenomena of the Aurora is confined to the observation, that the electric matter may often be readily collected from the air during its continuance—though decided instances have occurred in which this was not the case—and that a very good representation of the auroral light may be obtained by passing the electric fluid through an exhausted receiver

The Aurora Borealis must rather be looked upon as a phenomenon well worth observing than as one which has been well observed The reason is that till of late years there has been no concerted plan either as to the phenomena to be noted or the manner of observing them The British Association has lately directed its attention to the subject and has published some recommendations (*Reports* vol ii p 186), to which we refer all who have any instrumental means We shall select those points which do not require unusual apparatus

1 Whether the Aurora is accompanied by any noise

2 Whether there are any recurring periods of frequency and brilliancy?

3 What is the position of the phenomenon with respect to particular stars? (These may be ascertained on a globe and very frequently the stars can be seen through the Aurora)

4 The time of every phenomenon should be noted and the watch used should be compared with a watchmaker's regulator as soon as possible after the observations

5 The longitude of the place should be taken from a map

6 Any person who wishes regularly to watch for such phenomena, should look carefully at the horizon every evening about ten o'clock

7 If there is an arch, the positions of its two boundaries should be noted by the way in which they pass among the stars. Notice should be taken whether one edge is better defined than the other, whether there is a clear sky or dark cloud above or below; whether it terminates at the end in sky or in cloud, whether there is any dark band in it; whether, in its general composition, it is uniform or striated; whether stars can be seen through it

8 If any change takes place in the situation or appearance of the arch, the time should be immediately noted, and then the change.

9 If there are beams or streamers, the time should be noted, then their position among the stars; then their height among the stars; their motion (whether vertical or horizontal), the velocity of motion (by the time of passing from one star to another), their changes, their permanency, whether they appear to affect the arch, or to be entirely in front of it.

10. If there be any black clouds in the luminous region, notice should be taken whether the streamers or the arch seem to have any relation to them, whether and in what manner they increase or disappear

11 If there are waves or flashes of light, the observer should notice the time of beginning and finishing, the general extent of the flashes (up and down, as well as right and left) whether the flash is a real progress of light or successive illumination of different places

12 The existence and change of colours will of course be noticed

13 It is useless to observe a common magnetic needle The one used for this purpose should be suspended by a hair

The various theories which have been proposed to account for the Aurora Borealis give nothing very satisfactory Halley and Cotes attributed it to the watery vapours of the atmosphere the former also suggested the effluvia by which he at the same time proposed to explain the phenomena of magnetism Mairan wrote the complete treatise already alluded to in support of a notion that the solar atmosphere (to which he attributed the zodiacal light) extended as far as that of the earth and being driven towards the poles (how, is not very clear) causes the phenomena observed Euler imagined it to proceed from part of the upper atmosphere driven from its natural position by the impulse of light Beccaria, Canton, Franklin and others advocate the electric fluid The hypothesis of M Libes is at least ingenious and experimental and was at one time much adopted He had observed that when one of the compounds of oxygen and nitrogen was formed by the transmission of the electric spark through a mixture of those gases reddish vapours were produced which rose in the air He found also that in a mixture of oxygen, hydrogen and nitrogen the transmission of the electric spark caused the union of the oxygen and hydrogen (forming water) in preference to that of the oxygen and nitrogen He imagined therefore that there was but little hydrogen in the upper strata of the atmosphere near the pole, so that while the usual discharges of electricity form water in lower latitudes in consequence of the presence of hydrogen, a nitrous compound is formed in higher latitudes where he supposes that there is little or no hydrogen

This subject is one our knowledge of which we may expect to be rapidly increased Should that be the case, we may provisionally refer the reader to LIGHTS, NORTHERN

AURUNGABAD, a province of Hindustan, formerly known as the province or soubah of Ahmednuggur It is situated in that part of Hindustan which bears the name of the Deccan and lies between the 18th and 21st degree of north latitude The limits of this province are not very clearly defined and in common with those of other Indian territories are subject to occasional alteration To the north it has Gezerat, Kandeish, and Berar, to the east, Beeder and Hyderabad to the south is Bejapoor, and to the west the Indian Ocean Its length is estimated at 300 miles, and its breadth at 160 miles

Aurungabad first became a province of the Mogul Empire in 1633 in the reign of Shah Jehan, when the fortress of Dowlatabad was taken by the Soubahdar of Kandeish, who thus put an end to the short lived dynasty of the Abyssinian Malik Amber The fortress just mentioned was then considered as the capital of the province, and continued to be so after the Nizams became independent of the Mogul government, and until, in more recent times, the encroachments of the Poonah Mahrattas made it an uncomfortable residence for the Nizam, who removed the seat of his government to Hyderabad. The province is now

divided between the Nizam and the Mahrattas, about one-fourth being under the sway of the former, and three-fourths under that of the latter.

The surface of the province is in general mountainous, especially where it is crossed by the western ghauts, the hills there rising to a considerable height. The tract of country which lies to the eastward of the ghauts, and which includes the largest portion of the province, is for the most part elevated table-land, seldom less than 1800 feet above the level of the sea. It abounds in those almost inaccessible fastnesses—the hill forts—which so often baffled the attempts of the Moguls, and were of the greatest service to the natives in their struggles for independence.

In its general character, the soil of the province is fertile, producing abundance of rice; but, owing to the oppressive character of the native governments, the population is by no means proportionate to the extent or capability of the soil. Many European fruits attain to a high degree of perfection, particularly strawberries, peaches, and grapes; the last of which are very large.

A very hardy but ill formed breed of horses is reared in great numbers for the Mahratta cavalry.

Aurungabad contains the sources of several rivers; among others are the Neera, the Beema, and the Godavery. The first rises in the western ghauts to the south of Poona, and passing eastward divides the province from Bejapoor, and falls into the Beema at Nursingur, in the province of Malwa. The Beema rises in the mountains about 40 miles north of Poona, and passes at a distance of 15 miles from that place; thence it flows, with many windings, in a south-easterly direction, receiving several hill-streams in its course, and after flowing about 400 miles it joins the Krishna, in the province of Hyderabad. The Godavery, one of the most sacred streams of the Hindoos, and the largest river of the Dekkan, proceeds from numerous sources in the western ghaut mountains, and traverses the province from west to east. [See GODAVERY.] These rivers do not attain to any considerable size until they have left the limits of the province.

The principal towns of the Soubah are Aurungabad, Ahmednuggur, Dowlatabad, Poona, Jalna, and Bassein. Descriptions of these places will be found in this work, as well as of the remarkable excavated temples of Carli and Elora, both of which are within the province. The inhabitants are principally Hindoos; only about one-twentieth are Mohammedans. The Mahratta language is that principally used, and of this there are several local dialects. Hindustanee and Persian are spoken by the higher classes, the latter being used in the courts.

(See Ferishta's *History of the Deccan*; Malcolm's *Memoirs of Central India*; Rennell's *Memoir of a Map of Hindustan*.)

AURUNGABAD, a city of Hindustan, within the limits of the Nizam's dominions, and the capital of the province just described. It is situated in 19° 54′ N. lat., and 75° 33′ E. long.

Aurungabad was originally a village named Gurka, but becoming a favourite residence of Aurungzebe during the time when he was governor of Khandeish, in the Dekkan, it speedily rose in importance. For a long time after the Nizams had shaken off their dependence upon the court of Delhi, this city continued to be the place of their residence.

Aurungabad is situated in a hollow, on the banks of the river Kowlah, a mountain-stream, which separates the city from a considerable suburb called Begum Poora, the communication with which is preserved by means of two substantial bridges. On the north side is a considerable marsh employed for the cultivation of rice, and it is probably owing to the exhalations proceeding from this ground that the city is very unhealthy, and that the inhabitants are subject at all seasons to be attacked by intermittent fevers. The military cantonments, which stand about a mile south-west of the city upon a rocky plain, are said to be free from this malaria, and to be generally healthy.

Considerable industry has been shown in providing a sufficient supply of excellent water for the use and comfort of the inhabitants. This water is brought by means of stone conduits from the neighbouring hills, and is distributed through earthen pipes to numerous stone reservoirs in every part of the city. The principal street is nearly two miles long, and of a considerable width, with a spacious quadrangle at one extremity, and a handsome market-place near it. The palace of Aurungzebe, which is now in ruins, covers an extensive space. Here is also a celebrated mausoleum erected by order of that ruler to the memory of his daughter: it bears some resemblance to the *tâge mahal* built by the Emperor Shah Jehan, at Agra. The whole city is rapidly falling to decay, and when visited in 1827 by Colonel Fitzclarence appeared, at least as regarded its principal buildings, little better than a heap of ruins. In 1825 it was still, however, said to contain a population of 60,000 persons, and to cover a space about seven miles in circumference. A considerable traffic is carried on in the bazaar, where both European and native goods are exposed for sale: the principal trade is in silk manufactures.

During eight or nine months of the year the wind usually blows from the south-west; in the months of November, December, and January, easterly winds commonly prevail, and at this time the variations of temperature are sudden and excessive, the thermometer changing from 50° to 86° in the same day. At other times the range of the thermometer is from 78° to 100° Fahrenheit. The average quantity of rain which falls during the year is stated to be 36 inches; but in this respect the climate is subject to much variation, and for each of three consecutive years it has been known that the quantity of rain has not exceeded 21 inches. All kinds of tropical fruits are good and abundant, and both grapes and oranges are of excellent quality.

Aurungabad is distant from Poonah 186 miles; from Bombay 284 miles; from Hyderabad 295; from Madras 647; from Delhi 750; and from Calcutta 1022 miles, travelling distances. It is also about seven miles south-east from the fortress of Dowlatabad. (See Rennell's *Memoir*; Malcolm's *Memoir of Central India*; Ferishta's *History of the Deccan*; Fitzclarence's *Route through India and Egypt to England*.)

AURUNGZEBE was the last powerful and energetic sovereign that ruled over the Mogol empire of Hindustan during the latter half of the seventeenth century. His proper name was Mohammed; but his grandfather gave him the surname Aurungzebe (properly Aurang-zîb), *i. e.* 'the ornament of the throne,' and when he became emperor, he assumed the titles of Mohî-eddîn, *i. e.* 'the reviver of religion,' and Alem-gîr, *i. e.* 'the conqueror of the world.'

Aurungzebe was the third son of Shah Jehan, the son and successor of the celebrated emperor Jehangir. He was born on the 22nd of October, 1618, and had just attained his tenth year when, upon the death of Jehangir, his father ascended the throne (1st February, 1628). Aurungzebe appears from an early age to have aspired to the throne of the Mogols; but he artfully concealed his ambitious designs under an assumed air of piety and devotedness to religious duties. From his twentieth year, however, military duties devolved upon him, and soon engaged his entire attention. After an expedition, which the tranquillity of the empire had permitted Shah Jehan to undertake against the Dekkan, Aurungzebe was appointed governor of the conquered province of Khandeish, and founded here a magnificent city, which he called after his own name Aurungabad (properly Aurang-âbâd, *i. e.* the city of Aurang). Soon afterwards the province of Cabul was infested by an incursion of the Uzbeks. Aurungzebe was sent against them, and after a long and desperate struggle succeeded in subduing the Uzbek sovereign. But neither Aurungzebe nor Dara-Shekuh, his eldest brother, was able to rescue the city of Candahar, which Shah Abbas of Persia, during the absence of the Mogol army, had obtained by capitulation. At the instigation of Emir Jumlah, a chief in the service of the king of Golconda, Aurungzebe renewed the war in the Dekkan: he had taken Hyderabad by surprise, and laid siege to the city of Golconda, when orders from the imperial court at Agra arrived, directing that terms of peace should be proposed to the besieged raja. Emir Jumlah was called to Agra, and the emperor Shah Jehan conferred upon him the dignity of vizier. Jointly with him, Aurungzebe led an expedition against the raja of Bejapore, who, after the defeat of his army, was obliged to submit to very severe terms. After these events (about the end of the year 1656), the health of Shah Jehan, who was then upwards of seventy years old, excited alarm. His eldest son, Dara-Shekuh (born in A.D. 1615), endeavouring to secure the throne to himself, confined his father, and took the reins of government into his hands. He was at first opposed by his brother Sujah (born in A.D. 1616), the next in age to himself, but without effect. But Aurungzebe, under the pretence of

securing the throne to his younger brother Murad Bakhsh (born in A.D. 1624), then at Ahmedabad in Guzerat, invited him to join him with his forces at Ougein, the capital of Malwah. Murad Bakhsh followed this invitation, and the united troops of the two brothers encountered and defeated the forces of Dara-Shekuh near Ougein, and again near Agra. Dara-Shekuh fled towards Lahore, and Aurungzebe having first seized and imprisoned his brother Murad Bakhsh at Agra, was proclaimed emperor in the gardens of Izz-abad, near Delhi, on the 20th of July (according to others on the 2nd of August), 1658. His father, Shah Jehan, had in the mean time recovered from his illness; but Aurungzebe continued to keep him in custody, and removed him from Delhi to Agra, where he died at the age of seventy-four years, and it has been suspected by poison, on the 21st of January, 1666.

Shortly after Aurungzebe had been proclaimed emperor, his brother Sujah repeated the attempt to possess himself of the government, but was defeated in several battles, and at last having no further means of resistance, he fled from his retreat at Dacca in Bengal, and sought refuge with the neighbouring raja of Aracan, by whom he was cruelly betrayed and imprisoned. Dara-Shekuh had about the same time returned from Lahore, and having gained the governor of Guzerat, was marching towards Delhi, when he was met and defeated by Aurungzebe near Ajmere. He fled towards the Indus, but was betrayed into the hands of his brother, and put to death at Khizr-abad, near Delhi, on the 28th of August, 1659. His son Soliman-Shekuh had sought the protection of the raja of Serinagur in the northern mountains, but was by him delivered into the hands of Aurungzebe, who confined him in the fort of Gwalior (14th of January, 1661).

Aurungzebe had, in 1659, been proclaimed a second time, when he ordered that, for the future, the beginning of his reign should be dated from the 12th of May of that year (or the 1st of Ramazan, A. Heg. 1069). As soon as he had repressed all competition for the throne, he showed great prudence and talent in his administration, and his reign was peaceful and tranquil. Much credit is due to the foresight and prudent measures by which he succeeded in averting or mitigating the disastrous consequences of a famine that occurred in the third year of his reign.

Emir Jumlah had been appointed governor of Bengal; and his popularity excited the jealousy of Aurungzebe, who, in order to prevent him from forming ambitious designs, sent him on an expedition against the king of Asam. The arms of Emir Jumlah were victorious; but his troops were afflicted with a dysentery, to which disease Emir Jumlah himself fell a victim.

It deserves to be noticed that the throne of Aurungzebe had nearly been endangered in consequence of the mistake of a secretary, who, in writing to Shah Abbas of Persia, had addressed him by no higher title than belonged to the khan of the Uzbeks. Shah Abbas, supposing this to be a premeditated insult, declared a war, which might have proved fatal to Aurungzebe, and was actually advancing with an army towards India, when he suddenly died.

In the mean time, a new enemy to the throne of Aurungzebe had arisen in the person of Sevagee, the founder of the Mahratta power, who, when thwarted in his first exploits, submitted to the emperor, but soon revolted, in consequence of being treated with contumely; he struck coins in his own name, attacked and plundered Surat, and other parts of the Mogol dominion, and made the kings of Bejapore and of Golconda tributary to himself. In 1677 he entered the territory of Golconda with 40,000 horse, and placed Mahratta governors in the towns and fortresses; and when he died (A.D. 1682) his dominions comprehended an extent of about 400 miles in length, by 120 in breadth. The hostilities between the Mahratta and Mogol dominions were continued under his son Sambagee, who roused the indignation and resentment of Aurungzebe by affording a refuge to Prince Akbar, one of the emperor's younger sons, who had revolted against his father. In 1687 Aurungzebe led an army into the Dekkan, compelled the cities of Hyderabad, Bejapore, and Golconda to surrender, and extended his dominion nearly to the limits of the Carnatic. Sambagee was taken prisoner, and put to a cruel death. His brother Rama threw himself into the fort of Gingee, where he offered a most desperate resistance, and retarded the reduction of the Carnatic from the year 1692 till 1700. The settlement of the Dekkan, and the subjugation of the Mahrattas, continued to occupy the whole attention of Aurungzebe during the latter years of his life. The imperial troops easily conquered the Mahratta forces whenever they met them in the open field; but the Mahrattas skilfully eluded regular battles. They issued from their fastnesses in the mountains whenever they could, infested the adjacent provinces by predatory incursions, and retired to their retreats as soon as a Mogol army approached them. The jealous policy of Aurungzebe prevented him from intrusting bold and enterprising officers with the command of his troops, or with the government of provinces. Years were lost in unavailing attempts to subdue the dominion of these mountaineers, who soon found the whole country south of the river Nerbudda open to their devastations. In the midst of these struggles Aurungzebe died at Ahmednagar, in the province of Dowlatabad, on the 21st of January, 1707. With his death terminated the brilliant epoch of the Mogol power in India. He had five sons, Mohammed, Mohammed Mozim, Azem, Akbar, and Kâmbakhsh. Mohammed Mozim (surnamed Shah Alem and Kotb-eddîn Bahadur Shah) was proclaimed his successor. (See Orme's *Historical Fragments of the Mogul Empire*, vol. i. Lond. 1782, 8vo.' Dow's *History of Hindostan*, vol. iii. p. 60, &c. Mill's *History of British India*, 2d edit., vol. ii. p. 330—373.)

AUSCULTATION, from *ausculto* to listen, the method of distinguishing the states of health and disease by the study of the sounds produced by the organs in the movements which they make in the performance of their functions. When air rushes by the wind-pipe into the lung in the action of inspiration; when it is expelled through the same tube in the action of expiration; when it is acted upon in the larynx by the organs of the voice; when the heart beats, that is, when the different chambers of which it is composed forcibly contract; when the blood flows through the great arterial trunks; when air is contained in the intestines and is acted on by those organs in their natural movements,—in all those cases sounds are produced which can be heard, often by the unassisted ear; and still more distinctly by the aid of an acoustic instrument. When attention is paid to these sounds, it is found that they differ greatly from each other. The sound of the air in the wind-pipe during inspiration is different from that in the same tube in expiration: the sound of the air in the larynx during the act of speaking is different from both; while the sound produced by the action of the heart, and even by the action of its different chambers, may be discriminated the one from the other. By the study of these sounds, it is obvious that it may be possible to become acquainted with those which are natural to the different organs in the state of health: but when these organs become disordered, their movements are modified in a great variety of modes, each modification of movement being attended with a corresponding modification of sound; consequently, these modified sounds are capable of affording indications of various states of disease, the difference between the healthy and the morbid sound bring the sign and the measure of the deviation of the organ from the state of health. The physician, carefully studying the sounds produced by the organs during life, makes himself familiar with those which are natural to them: in a particular case he hears sounds which he knows to be altogether different from those that are natural: the patient dies: the physician examines the organs after death; he finds that a certain organ is diseased in a certain mode. this morbid condition of the organ, which he has been taught by inspection after death, he associates in his mind with the peculiar sound which he observed that the organ emitted during life. Another case, attended with the same sound, is proved by inspection after death to be connected with the same disease of the same organ; and every time that he hears this peculiar sound, he finds the same organ diseased in the same mode. A peculiar sound may thus become the sure and certain indication of a particular disease; in this manner, by persevering attention during life and careful examination after death, it may be possible to discriminate the morbid states of all the organs that give, when in action, a distinguishable sound. Extended and repeated observation has shown that the detection and discrimination of disease by this mode may be effected with a minuteness and precision that could not possibly have been credited previous to the practical demonstration of the fact; and modern science has elicited, and almost matured, a new mode, an *inventum novum*, as one of the first suggestors of it justly termed it, of discovering

the morbid states of several of the most important organs of the body.

To the philosophical mind nothing is more interesting and instructive than to trace the history of useful discovery. It is clear that the idea on which the modern art of auscultation is founded, had occurred to Hippocrates upwards of two thousand years ago. 'You will know by this,' says this first recorded observer of disease as denoted by sound, 'that the chest contains water and not pus, if, on applying the ear for a certain time to the side, you hear a sound like that of boiling vinegar.' The non-existence of dissection in the age and country of Hippocrates prevented all accurate and extended observation; and consequently rendered it impossible to follow out to any sure and useful result the idea which had occurred to the most antient writer on physic. Accordingly, the suggestion of Hippocrates seems to have attracted no attention for many centuries, and the mode of studying disease founded upon it, if it had ever been carried to any extent in remote ages, had long sunk into oblivion.

About the middle of the 17th century, a distinguished philosopher and mathematician, who was not of the medical profession, and who does not appear to have been acquainted with the writings of Hippocrates, had the penetration to see that advantage might be taken of the sounds produced by the motions of the internal organs to discover the nature of their diseased states, and he even predicted that artificial means would some day be employed to assist the ear in the pursuit of that object. 'There may be a possibility,' says Hooke, in his posthumous works, 'of discovering the internal motions and actions of bodies by the sound they make. Who knows but that, as in a watch, we may hear the beating of the balance, and the running of the wheels, and the striking of the hammers, and the grating of the teeth, and multitudes of other noises; who knows, I say, but that it may be possible to discover the motions of internal parts of bodies, whether animal, vegetable, or mineral, by the sounds they make; that one may discover the works performed in the several offices and shops of a man's body, and thereby discover what engine is out of order, what works are going on at several times, and lie still at others, and the like. I have this encouragement not to think all these things utterly impossible, though never so much derided by the generality of men, and never so seemingly mad, foolish, and fantastic, that, as the thinking them impossible cannot much improve my knowledge, so the believing them possible may perhaps be an occasion for taking notice of such things as another would pass by without regard as useless. And somewhat more of encouragement I have also from experience, that I have been able to hear very plainly the beating of a man's heart; and it is common to hear the motion of the wind to and fro in the guts and other small vessels: the stopping in the lungs is easily discovered by the wheezing. As to the motion of the parts one amongst another, to their becoming sensible, they require either that their motions be increased, or that the organ be made more nice and powerful to sensate and distinguish them as they are; for the doing of both which I think it is not impossible but that in many cases there may be helps found.'

This prediction has been realized: helps have been found. About a century after this passage was written, Leopold Avenbrugger, a German physician then residing at Vienna, fell upon an artificial method of producing sounds in various regions of the body (see PERCUSSION) by which the physician might judge of the state of the subjacent parts. This method, announced to the world in a small volume in Latin, first published in the year 1761, attracted little attention either among the countrymen of the inventor or among foreign nations for the space of half a century. In the year 1808, the celebrated Corvisart translated into French the work of Avenbrugger, and made his method known to all the countries of Europe. From that period the practice of percussion has been pretty general, and it soon became attended, in skilful hands, with results far more precise and certain than had been anticipated.

The attention of physicians having been thus distinctly directed to the method of studying disease from sounds produced in the body whether naturally or artificially, a number of young French physicians, disciples of Corvisart, about the commencement of the present century, took up the subject with extraordinary zeal. Among the most distinguished of these young men were MM. Double, Bayle, and Laennec. Speaking of the signs furnished by respiration, and of the sounds produced by it within the chest, M. Double, in his work on Semeiology, published two years before the discovery which led to the establishment of auscultation as an art and science, says, 'In order to hear distinctly the sounds within the chest, we must apply the ear closely to every point of all its aspects, by which means we can distinguish not merely the kind and degree of the sound, but even its precise site. I have frequently derived great benefit from this mode of investigation, to which I was naturally led by the employment of the like method in exploring the pulsation of the heart.'

At the very time when this was written, Laennec and several of his fellow-pupils, under the guidance of their master Corvisart, while diligently studying chest-diseases by means of percussion, met occasionally with cases in which this method afforded them little or no assistance; and in the hope of obtaining further aid, they accustomed themselves in such cases to apply the ear closely to the chest. Little practical benefit resulted for some time: but at length it led to a discovery of inestimable advantage; a discovery which may be said to have enabled the physician to see into the chest almost with as much clearness as if its walls were transparent. The following is the account of this discovery in the words of the remarkable man who made it, and who, in the course of a few years, with a diligence scarcely ever exceeded, developed, matured, and systematized the highly-important practical results which it has afforded.

'In the year 1816,' says Laennec in his great work *De l'Auscultation Médiate et des Maladies des Poumons et du Cœur*, 'I was consulted by a young woman affected with the general symptoms of diseased heart, and in whose case percussion and the application of the hand were of little avail, owing to her being extremely lusty. The immediate application of the ear being inadmissible for obvious reasons, I happened to recollect a simple and well-known fact in acoustics, and fancied it might be turned to some use on the present occasion. The fact I allude to is the great distinctness with which we hear the scratch of a pin at one end of a piece of wood on applying our ear to the other. Immediately on this suggestion, I rolled a quire of paper into a kind of cylinder, and applied one end of it to my patient's chest and the other to my ear, and was not a little surprised and pleased to find that I could thereby perceive the action of the heart in a manner much more clear and distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that means might be found to ascertain the character, not merely of the action of the heart, but of every species of sound produced by the motion of all the organs within the chest.'

Diligently applying himself to improve and perfect the rude instruments which he employed in his first trials, Laennec at length constructed that which is now in general use, called the Stethoscope (from στηθος, *breast* or *chest*, and σκοπέω, *examine* or *explore*), by the aid of which he was at once impressed with the conviction that he should be enabled to discover 'a set of new signs of diseases of the chest, simple and certain, and such as might probably render the diagnosis of these diseases as positive and circumstantial as that of many affections which come within the immediate reach of the hand or the instrument of the surgeon.' And this conviction, to a great extent, has been realised, for a new, clear, steady, and certain light has, by the aid of this instrument, been thrown on almost all the diseases of all the organs contained in the chest.

The art of distinguishing disease by sound comprehends then two distinct methods, that of *auscultation* and that of *percussion*. The study of auscultation may be pursued either by the unassisted ear, or through the medium of instruments: the first is called immediate or direct, the second mediate auscultation. In like manner percussion may be performed either on the natural surface of the body, or through the medium of some solid or tense substance firmly applied to it. The first is termed direct, the second mediate, percussion. [See PERCUSSION.] See also Double, *Séméiologie Générale*; Forbes's Translation of Corvisart's *Avenbrugger*; Laennec, *De l'Auscultation Médiate*; art. 'Auscultation' in *Cyclopædia of Practical Medicine*, and in the *Dictionary of Practical Medicine*, by Dr. Copland.

AUSONIANS (AU'SONES), an antient people of the Italian peninsula, who appear to have been a branch of the great Opican or Oscan nation. Niebuhr shows that Ausones is the Greek form of the native name Auruni, from which the adjective form Aurunicus, shortened into Aurun-

cus, would come. This interchange of *s* and *r*, in certain positions, is not at all uncommon. The Ausones, then, and the Aurunci, are identical. Suessa Aurunca, near the Liris, was in the centre of the country which they occupied. Cales (Livy, viii. 16), Ausona, Minturnæ, and Vescia (ix. 25) were Ausonian cities. Livy (viii. 15, 16) seems to speak of the Aurunci of Suessa and the Ausones of Cales as two different people; the former were the enemies, the latter the allies of the Sidicini. The explanation must be, that the Ausones of Cales, and the Aurunci of Suessa, were both Ausones or Aurunci (it is indifferent which term we use), and that one part of the nation, at the period referred to, was hostile to the Romans, and the other part friendly to them. (See Niebuhr, i. p. 63, &c., English translation; and OSCI.)

AUSO'NIUS, DECIMUS MAGNUS (for so, and not Decius, we should certainly read his name), was born at Burdigala, Bourdeaux, some time early in the fourth century. His father Julius Ausonius was a distinguished physician, eminent also for his acquaintance with Grecian literature. The son was brought up by his maternal uncle, who was a believer in judicial astrology, and presaged great things from his nephew's horoscope. Ausonius devoted himself to the cultivation of letters. When about thirty, he was employed to teach grammar in the schools of Bourdeaux, and soon after was appointed professor of rhetoric. He was naturally attached to that city; and has celebrated in a book of poems (*Commemoratio Professorum Burdigalensium*) all those who had taught in the schools of Bourdeaux, and those natives of the place who had filled professorships elsewhere. In A.D. 369, his reputation caused him to be selected by the Emperor Valentinian as tutor to his son Gratian. This connection naturally led to his promotion; and he was appointed Prætorian Præfect of Italy A.D. 377, and of the Gauls in the following year (for the nature of this *civil* office, see Gibbon, ch. xvii. middle); and made consul by Gratian in 379.

It is of little consequence now, though it has been largely disputed, whether Ausonius was a Christian or heathen: if the former, some of his writings do little credit to his profession. His poetical talents were highly esteemed during his life (as indeed he is among the best writers of that late æra); and the Emperor Theodosius wished to obtain the same return of flattery from him which Augustus received from Horace and Virgil. But his style is vicious and full of conceits, and his subjects generally too trifling to retain any interest. He wrote *Epigrams*, which contain more indecency than originality; *Ordo Nobilium Urbium*, a series of short poems on eminent cities; *Idyllia*, among which *Cupid Crucified* and the *Moselle* are perhaps the best; *Epistolæ*; *Gratiarum Actio*, an address of thanks, in prose, to Gratian, which contains many of the particulars of his life. He also wrote a poem, now lost, on the Roman Fasti, from the foundation of the city down to the year 366; and it might seem from the lines,

> Mille annos centumque et bis fluxisse novenos
> Consulis Ausonii nomen adusque leges,

that he was consul in the year 366; but the Fasti and the general consent of modern writers fix his consulate to the year 379.

Of the numerous editions of this author, the Delphin, by Father Souchay, is recommended as the best. The Variorum, 1671, and Bipont, 1785, may also be recommended.

AUSPICES (*Auspicia*). For a brief view of the Roman superstition upon which the ceremony of the auspices was founded, the reader is referred to AUGUR. It is there stated that the greater part of the Roman magistrates, before they entered upon their office, went through the ceremony of inauguration, which was supposed to confer upon them the protection of heaven. When the Roman empire had greatly extended itself, it was no longer possible for the small body of augurs on all occasions to perform their duties in person; and it was therefore conducive to the public service that the magistrates themselves who had been inaugurated should be supposed to have received from that ceremony some share in the divine privilege. Thus they too were able to deduce the pleasure of heaven from the movements of birds and the other signs which belonged to the sacred science. Originally, this power was peculiar to the patrician members, and the privilege was employed as an argument for excluding the plebeians from the higher magistracies; but eventually, when the plebeians had acquired a right of admission to the consulate, prætorship, &c., they also necessarily had the privilege of the auspices attached to these magistracies. Still, to the very last, those offices which in their origin were purely of a plebeian character, as the tribunate, had no connection whatever with the auspices. There were many niceties in the law of auspices, which were matters of dispute among the Romans themselves, and were referred from time to time to the college of augurs, or sometimes to a single member of that body. The most important distinction was that which existed between the greater and the less auspices: thus the auspices of a consul were superior to those of a prætor; and consequently the latter, it was ruled, could not preside at a consular election.

In an army the commander-in-chief received the auspices with the *imperium*, and so completely was any success attributed to this privilege, that if any part of his army under any inferior officer, in any part of the world, gained a victory, that success was attributed to the commander-in-chief, who perhaps might have been the whole time in the neighbourhood of Rome, and he alone was entitled to the honours of the triumph. In this case the lieutenant was said to fight under the auspices of the commander-in-chief. As the ceremony of the auspices was originally employed to sanction the commencement of every important undertaking, whether public or private, the word *auspicari*, 'to take the auspices,' came at last to bear the signification of commencing any matter of importance.

AUSTELL, or AUSTLE, ST., a considerable market-town in the east division of the hundred of Powder, in the county of Cornwall, on the road from London, through Lostwithiel, to Grampound, Truro, Redruth, and St. Ives; 243 miles W.S.W. of London, 8½ from Lostwithiel, and 13 from Truro. It occupies the side of a hill, and slopes gradually to a small rivulet that waters a narrow valley. The streets are narrow, and without foot pavement, which is the more inconvenient as the town is a considerable thoroughfare. The church is a handsome fabric, consisting of a nave and chancel, with side aisles separated by clustered pillars. It has a good tower, adorned with singular sculpture; some other parts of the edifice are also fancifully ornamented. Round the second story of the tower are several rude statues in richly ornamented niches. There are many figures on the west side, and four on each of the others. Those on the west side are thus described, in the MS. collections of Messrs. Lysons in the British Museum:—'The uppermost niche has the figure of God the Father, with the crucifix. This niche is supported by two angels holding a cloth inclosing some little figure praying. In the next row of niches, St. Gabriel and the Virgin pray with the lily-pot: in the lower one our Saviour is in the centre with [his] right hand elevated, the cross in the left, and [the] crown of thorns on. This niche is richly ornamented with scrolls of foliage on the side. On the right hand of this niche [is] a saint with a staff in his right hand, a cord in his left; on the right [of the] niche is a bishop.' The remaining twelve figures, on the other sides, are supposed to be the apostles. Over the south porch is an inscription in stone relief, of the meaning of which the best-informed antiquaries seem in doubt. Various shields of ornaments are carved on the outside of the church, and on the seats; and from the frequent occurrence of the shovel, hammer, &c., it would seem that the miners were the chief contributors to the building. The font is a very ancient one, covered with curious sculpture of grotesque animals. The archdeacon of Winchester, Philip Cornwallis, gave an endowment for a chantry chapel in the churchyard of St. Austell, and there was once a sanctuary here.

St. Austell was described by Leland, in the time of Henry VIII., as a poor village. It has risen to eminence from its vicinity to the great tin mine of Polgooth (which is partly in this parish, and was at one time esteemed the richest mine ever worked in England), and other considerable mines. It still owes its principal importance to the tin mines, the copper mine of Crennis, and the porcelain-clay works in or near the parish. The pilchard fishery is carried on to a considerable extent (for the parish extends to the coast, though the town itself is a little inland), and there have been harbours formed at Charlestown and Pentewan for the convenience of importing coals from Wales, and of exporting the ores or porcelain clay of the district. A railroad connects the town with the harbour of Pentewan. There are, at the west end of the town, three blowing-houses (for some years the only ones in the county) for smelting ore. The ore smelted in these houses is for some purposes preferable to what is smelted in

the common way. Copper ore is said to have been smelted at St. Austell before any other place in Cornwall. There is a dock and shipwright's yard at Charlestown, and the manufacture of coarse woollens was carried on in St. Austell some years since, but whether it is still continued, we have no information. There is at Pentewan a famous stone quarry, from which stone has been got for building many churches and gentlemen's seats in the county.

There is a considerable weekly market on Friday for corn and other articles. It is held under a charter granted by Queen Elizabeth, who directed that the tolls should be applied to the relief and maintenance of the poor. There are two fairs, one on the Thursday in Whitsun-week, and the other on the 30th November. It is said there was once another fair, viz., on Palm Sunday. The circumstance of the Blackmore Court (the most considerable of the Stannary Courts) being held here has contributed to the prosperity of the town.

The parish includes several villages; of which the principal are, Carvath, Corbean, Pentuan or Pentewan, Porthpean, Rescorla, Tregonissy, Tregorick, Trenarren, Tretherg), Trevarrick, and Charlestown, formerly Porthmear. The number of houses in the whole parish, in 1831, was 1628 (including 15 building and 70 uninhabited), and of inhabitants 8758. The increase of population which has taken place is very considerable. The number of inhabitants has more than doubled within the last twenty years. This is ascribed to the demand for labour in the mines.

The living is a vicarage in the gift of the crown. It is in the rural deanery of Powder, the archdeaconry of Cornwall, and the diocese of Exeter. There are several dissenting places of worship; also an alms-house built in 1809, but not endowed. There was anciently a free chapel at Menacuddle, in the parish;* also a chapel of St. Mary at Millhuse, and another at Treverbin Courtenay.

The town of St. Austell, in which part of the parliamentary army, under the Earl of Essex, had been quartered during the great civil war, was taken by Charles I. in the year 1644, a little before the capitulation of that army.

The old town of St. Austell was a little distance to the east of the present. Its site is still marked by a few cottages. (Lysons's *Magna Britannia*; *Beauties of England and Wales*.)

AUSTERLITZ (also called Slawkow) is the chief town of the principality of Kaunitz-Rittberg, in the circle of Brünn, in Moravia, and about nine miles east of the town of Brünn; it lies on the Littawa, and with its suburb contains about 300 houses, and 2200 inhabitants. A handsome palace, to which delightful grounds are attached, forms its principal embellishment. This place owes its celebrity to the 'Battle of the three Emperors,' which was fought in its vicinity on the 2nd of December, 1805. In 1803, England renewed the contest with France, and the first great blow struck by Napoleon having stripped the English sovereign of his Hanoverian dominions, Pitt succeeded in forming a coalition, to which Russia, Austria, and Sweden became parties in 1805. Napoleon lost no time in rapidly pouring his troops into the heart of Germany, where he cut off the retreat of 24,000 Austrians, under Field-marshal Mack, shut them up in Ulm, and forced them to surrender on the 17th of October. On the 11th of the following month Napoleon entered Vienna; and the Emperor Francis, having removed the Austrian head-quarters to Olmütz, in Moravia, was there joined by two divisions of the Russian army, under Buxhövden and Kutusoff. The arrival of the Emperor Alexander on the 24th was the signal for the movement of the allied forces upon Brünn, with the view of offering battle to Napoleon, who had chosen that town for the temporary centre of his operations. Napoleon gained a complete victory at Austerlitz. The first result of the battle was an armistice, the terms of which were dictated by Napoleon on the 6th of December; the second was the treaty made at Pressburg, on the 26th of the same month, between Berthier and Prince Lichtenstein, the French and Austrian plenipotentiaries, by which it was agreed that Austria should abandon the Venetian territories in favour of the kingdom of Italy, and renounce her possessions in the Tyrol and Swabia; the latter being designed by the conqueror for distribution between the Würtemberg, Bavarian, and Baden sovereigns, as a reward for their co-operation. This campaign cost the Austrian crown nearly 24,000 square miles of territory, 2,786,000 subjects, and an income of 1,300,000*l.* sterling, independently of severe temporary sacrifices. [See BONAPARTE.]

AUSTIN, ST. [See AUGUSTINE.]

AUSTRALASIA. [See AUSTRALIA.]

AUSTRA'LIA is the name recently adopted to designate all the countries which are considered as forming the fifth great division of the globe. Up to the middle of the last century, and still later, theoretical geographers, from the fanciful idea of the necessity of an equilibrium in the solid parts of the surface of the globe, imagined that a vast continent surrounded the Antarctic Pole, and this imaginary continent was called by them *Terra Australis*. When the errors of these speculative geographers were corrected by the voyages and discoveries of Captain Cook, all the islands lying to the south of Asia and those in the Pacific Ocean had already received peculiar proper names. It did not seem convenient to the geographers of that period to add these islands either to Asia or to America; and they wished therefore to devise a name which should comprehend all of them, and at the same time express their position on the globe. The English adopted *Australasia*, the French *Oceanica*, and the Germans changed the Terra Australis into *Australia*, which name at present seems to have obtained the ascendency.

The islands composing Australia are situated, as we have already observed, partly to the south of Asia and partly in the wide Pacific Ocean between Asia and America. From America they are divided by a wide and open sea, but there is no natural boundary which separates them from the islands belonging to Asia. When the Portuguese and the Spaniards, in the beginning of the sixteenth century, began to be acquainted with the islands of India, they only visited those which offered some mercantile advantages, and made settlements in such as were calculated to reward the expense and toil of a conquest. Those islands which did not offer any such advantages, and which were consequently neglected by them, were not considered by their geographers and historians as belonging to Asia. Such islands, accordingly, remained excluded from the divisions of the globe at that time existing, and they now form parts of Australia. In this way, Japan, Formosa, the Philippines, the Moluccas, and that long chain of islands which in the east begins with Timorlaut, and on the west terminates with Java, are considered to belong to Asia; while the numerous islands lying between the Moluccas and New Guinea, and at a short distance from the former, are included in Australia.

Australia, then, consists of one very large island, formerly called New Holland, and now the continent of Australia, or briefly Australia, lying between 115° and 153° E. long. and 10° 30′ and 39° S. lat., and of an indefinite number of smaller islands lying to the S.E., E. and N.E. of this continent, between 130° E. and 109° W. long., and between 30° N. and 50° S. lat.

The continent of Australia extends, in its greatest length between Sharks Bay on the west coast and Cape Sandy on the eastern, 2100 miles; and from north to south between Cape York on Torres Straits to Cape Otway on Bass Straits, about 1700 miles. Its average breadth may be nearly 1400 miles. Timor and Timorlaut are the nearest of the Asiatic islands, the former being about 280 miles distant from Cape Talbot, and the latter equally distant from Coburg Peninsula: but the continent approaches nearer to New Guinea, which is separated from it by Torres Straits, not quite 90 miles wide at Cape York. Australia is divided from Van Diemen's Land by Bass Straits, which extend from N. to S. about 140 miles at a mean.

The other islands belonging to Australia lie in the Pacific Ocean, either in groups or scattered singly over the wide sea. They may be divided into those to the north and those to the south of the equator.

To the north of the equator, between 140° and 150° E. long., are three groups, the Bonin Sima Islands, the Marianes or Ladrones, and the Carolinas; the latter extend to 165° E. long. Nearly contiguous to the Carolinas, between 165° and 180° E. long., are Lord Mulgrave's Islands, forming different groups, or rather chains, as Ralick, Radack, and Marshall Islands. Gilbert's Archipelago, situated on both sides of the equator, is likewise considered as belonging to Lord Mulgrave's Islands. The group of the Sandwich Islands lies at a great distance, between 150 and 160° W. long. and 19° and 23° N. lat. The inhabitants of all these

* There is an antient Gothic building over the old chapel well at Menacuddle.

islands belong to the Malay race, except the Bonin Sima islands, on which the Japanese have settled.

South of the equator, and between it and the continent of Australia, is the large island of New Guinea, which extends in the direction of W.N.W. and E.S.E. over seventeen degrees of longitude. East of it lie the Admiralty Group and the islands of New Britain, New Ireland, New Hanover, and the Luisiade Archipelago, which are followed by the extensive Solomon's Archipelago. All these islands lie between the equator and 10° S. lat., and are inhabited by nations belonging to the Austral Negroes or Papuas.

Between 10° S. lat. and the tropic of Capricorn lie the following islands and groups:—New Caledonia; the New Hebrides; the Feejee Islands; the Santa Cruz Archipelago; the Friendly Islands; the Navigator's Islands; Cook's Islands; Society Islands; and the Dangerous Archipelago. North of the latter group are the Mendaña or Marquesas Islands, lying between 5° and 10° S. lat.

At a great distance from these groups are situated Easter Island and New Zealand; the former lies in 27° S. lat. and 109° W. long., and the latter, consisting of three islands, between 34° and 48° S. lat. and 166° and 178° E. long.

The island, called Van Diemen's Land, or Tasmania, lies south of the continent, between 41° and 43° S. lat. and 145° and 147° E. long. Further particulars of these islands are found under their respective heads.

1. *Discovery of Australia.*—It happened that the Portuguese navigators arrived at the Moluccas, and that Fernando de Magalhaens, after opening an entrance to the Pacific Ocean, by the discovery of the strait which is named after him, sailed round the world, and discovered the Philippines nearly about the same time. The Portuguese finding full occupation in the islands near India, did not extend their navigation farther to the east or south, except that they probably discovered the island of New Guinea or Papua. But the Spaniards having conquered Mexico and settled on the Philippine and Molucca Islands, soon established a commerce between Acapulco and Manilla. Their vessels annually traversed the Pacific Ocean, but as they always followed the same track, they made at first no discoveries in these seas except the Marianas and Carolinas, which lay in the route of their vessels. Don Jorge de Meneses, in 1526, accidentally fell in with the north coast of New Guinea, or Papua, in proceeding from Malacca to the Moluccas. Alvaro de Mendaña, in 1567, discovered Solomon's Archipelago. Towards the end of the sixteenth century (1595 1596), he was sent by the Spanish government on a voyage of discovery, in which he found the group of the Mendaña Islands and those of Santa Cruz. In the beginning of the seventeenth century, Pedro Fernandez de Quiros and Luis Vaez de Torres undertook another voyage of discovery (1605-1607), and while they remained together they discovered the Terra del Espiritu Santo, which, when re-discovered by Cook, was found to consist of many islands, and was called by him the New Hebrides. Torres being separated from Quiros, sailed along the southern coast of New Guinea, and passed through the straits which separate that island from the continent of Australia, and which at present bear his name. He saw the coast of Australia, at its most northern point, Cape York, only a few months after it had been discovered by the Dutch, but he was not aware of its being part of a vast continent, and thought it was some islands of small extent. After this voyage the Spanish nation fell into such a state of inactivity that they thought no more of discoveries.

Not long before the voyage of Quiros and Torres, the Hollanders had successfully begun to assail the Portuguese on the continent and islands of India, and to establish an active commerce with these countries. Being eager to extend their conquests and commerce, they sent, in 1605, a yacht, called Duyfen, from Bantam, to explore the coast of New Guinea; on its return from the expedition, this vessel fell in with the coast of Continental Australia, to the south of Endeavour's Strait, on the eastern shores of the Gulf of Carpentaria. This happened in March, 1606, only a few months before the arrival of Torres in the neighbourhood. The Dutch did not at first pursue their voyages of discovery, though the greatest portion of the coasts of the continent was shortly afterwards first accidentally seen by their vessels carrying on the commerce between Europe and Batavia. In 1616, Theodoric Hertoge fell in with a part of the western coast, between 28° of lat. and the tropic of Capricorn, and called it Endracht's Land (Country of Concord), from the name of the ship by which the discovery was made. After this time, discoveries on these coasts followed closely on one another. In 1618, the coast from about 11° to 15° S. lat., was discovered by Zeachen, who seems to have coasted this quarter of the island from the entrance of the Gulf of Carpentaria to Cape Talbot, and to have called the eastern part of his discoveries Arnheim's Land, and the western Van Diemen's Land. The following year, Von Edels fell in with the western country about the 30° S. lat., and it received his name. In 1622, the southern extremity of the island was discovered, and named Leeuwin Land (Lioness Land), from the name of the ship by which the discovery was made; and, five years afterwards, Peter Van Nuyts sailed along the southern coast, which extends from Cape Leeuwin nearly to Spencer's Gulf. In 1628, the Dutch discoveries on the continent of Australia were completed by the discovery of De Witt's Land and of Carpentaria; the first named after the Commodore de Witt, who commanded the squadron; and the second, after the general Peter Carpenter, who explored the Gulf of Carpentaria with tolerable accuracy. Thus the Dutch navigators discovered somewhat more than half the coast of the continent of Australia.

The regular voyages of discovery undertaken by the Dutch were not less successful. Shouten and Le Maire (1615—1617) discovered the straits of Le Maire, between Terra del Fuego and Staten Land, and entered the Pacific Ocean by Cape Horn. In this ocean, however, they fell in only with some small islands belonging to the Dangerous Archipelago, and with the eastern part of New Ireland. Abel Jansen Tasman (in 1642) discovered Van Diemen's Island, which, up to the close of the last century, was thought to be a part of the continent of New Holland; and afterwards New Zealand, New Britain, New Ireland, and the group of the Friendly Islands. The last of the Dutch navigators who distinguished himself by discoveries in these seas, was Jacob Roggewein, who, in 1721 and 1722, discovered some islands of the Dangerous Archipelago, and a part of New Britain.

The English entered much later on the career of discovery, and were not at first successful. Towards the end of the seventeenth century, Dampier explored some parts of the coasts of the continent, and surveyed New Britain and New Ireland, which had previously been discovered by the Dutch; but he did not add to the number of discoveries. After the middle of the eighteenth century, the discoveries of the English were of great importance. Captains Wallis and Carteret (1763—1766) discovered the Society Islands, New Ireland, New Britain, and New Hanover, and some other islands of less extent. They were closely followed by Captain Cook, who, in his three voyages, besides exploring and surveying a large number of the islands formerly known, discovered the eastern coast of Australia, from Cape Howe to Cape York, which was called by him New South Wales, with New Caledonia, the Sandwich Islands, and many smaller islands. After his voyages, many other Englishmen explored these seas successfully. Lord Mulgrave's Islands were discovered in 1787, and the Feejee Islands in 1789 by Bligh. After the establishment of the English colony in New South Wales, those coasts of the continent which till then had not been visited by Europeans were explored. Bass and Flinders discovered, in 1798, the strait which separates Van Diemen's Island from the continent; and the adjacent coast of the continent was called Bass Land. In 1800, Grant discovered the coast to the west of Bass Land up to Cape Northumberland: this portion of the continent bears the name of Grant's Land. Flinders, after having surveyed Nuyt's Land, discovered, in 1805, a large extent of coast to the east of it, which after him is called Flinders' Land. Thus, nearly all the remaining part of the coasts of continental Australia, unseen by the Dutch, were discovered by the English in less than fifty years: only a small portion between Flinders' Land and Grant's Land remained undiscovered, and was afterwards explored by the French.

The French government, in the last century, undertook several voyages of discovery, but with no great success. The most fortunate was that of Bougainville (1768—70), who, besides visiting some other groups already previously known, discovered the Navigators' Islands and the Luisiade Archipelago. In the present century, under Napoleon, Captain Baudin succeeded in discovering and exploring, in 1805, that part of the southern coast of the continent which

lies between Flinders' Land and Grant's Land, and gave it the name of Napoleon's Land; but on our charts it is commonly called Baudin's Land.

As so short a time has elapsed since the complete discovery of the coasts of Continental Australia, it cannot be a matter of surprise that we are so little acquainted with the interior. After the establishment of the English colony at Port Jackson, in 1788, the settlers began to penetrate into the interior; but their progress was soon stopped by that mountain-range which runs along the coast of New South Wales, at no great distance from the ocean. For many years their attempts to cross these mountains were baffled; not so much by their height, which is inconsiderable, as by the steep rocks which form the highest summits, and because they probably had never been passed by the natives. At last an attempt made in 1813 succeeded; and during the last twenty years the progress of discovery in the interior has been surprisingly rapid. Nearly one-eighth of this continent, which is thought to be not much inferior to all Europe in area, has been so far explored that a pretty accurate idea may be formed of its soil and capabilities. We owe this to the attention which the governors of the colony have commonly paid to this object, and to the enterprising activity of a few gentlemen; among whom, Mr. Oxley, Mr. Cunningham, and Captain Sturt, have been the most successful.

II. *Coast surveyed.*—Most of the coasts of Continental Australia have been surveyed. Captain Cook surveyed New South Wales, from Cape Howe (38° S. lat.) to Cape York (10° 30′ S. lat.).

The Gulf of Carpentaria was surveyed by General Carpenter at the time of its discovery, but was explored with greater accuracy and laid down by Captain Flinders.

The coast of Arnhem's, Van Diemen's Land, and of a large portion of De Witt's Land, was surveyed by Captain King. But that portion of the coast of De Witt's Land which extends from Cape Villaret to Depuch Islands has not been surveyed, and is nearly unknown.

The coast between Depuch Islands and North-West Cape was surveyed by Captain Philip P. King.

Shark's Bay was surveyed by Dampier.

The coast south of that Bay to Cape Leeuwin was surveyed lately, at the time when the settlement on Swan River was formed (1825).

The southern coast of Australia, from Cape Leeuwin to Encounter Bay, was surveyed by Captain Flinders.

The coasts of Baudin's Land were surveyed by its discoverer, and those of Grant's Land and Bass Land, by Grant and Flinders.

Some of the islands belonging to Australia have been surveyed with great accuracy by English navigators; those especially which were visited by Captain Cook, as New Zealand, the Society Islands, the Friendly Islands, and the Sandwich Islands. Others, as Solomon's Archipelago, the islands of Santa Cruz, and the large island of New Guinea, have not had this minute examination.

III. *Physical geography.*—Until very lately an idea prevailed that the continent of Australia rose on all sides to a considerable elevation at no great distance from the coast, and that the interior was an immense basin, where an extensive lake received all the water flowing down from the elevated ridges surrounding it on all points of the compass. This was inferred from the navigators, who surveyed the coast with accuracy, not having been able to discover the outlet of any great river; and it received great support from the discovery of Mr. Oxley, that the two greatest rivers of the interior, the Macquarie and the Lachlan, terminated in swampy marshes. But this generalization was made too hastily. It is not proved that the land generally attains a considerable height at no great distance from the shores. Capt. Flinders, in surveying the southern coast between Cape Leeuwin and Cape Wiles, to the west of Spencer's Gulf, on an extent of coast of nearly twenty-five degrees of long. observed only very few eminences which deserved to be called hills, and nearly all of them were composed of sand. Scarcely in any part was a high country visible behind the low coast. The country about Spencer's Gulf up to Bass Strait and Cape Wilson is more hilly; but even here large tracts of the coast are low and no mountains are visible. Along the coast of New South Wales, from Cape Wilson to Cape York, the mountains appear at no great distance from the shore, which in many parts is low, and in others rocky and mountainous. But on the northern coast again many extensive tracts of low shore are found, as on the eastern and southern parts of Carpenter's Gulf, on Van Diemen's Gulf, where the alligator rivers discharge their water, and towards North West Cape. That portion of the coast which has not been surveyed may also be a low land. The western shores, however, are in many places high and precipitous, especially to the south of Dirk Hartog's Island; and even where they are low, a range of mountains appears at no great distance from the sea. From these short notices on the character of the coasts, it is evident that all the watercourses formed in the interior may easily find their way to the sea which washes the southern and northern shores. It ought further to be observed, that even the most careful navigator, in surveying a coast, may overlook an inlet, which is the mouth of a large river, especially where the shores are low and sandy: this happened to Captain Flinders, whose general accuracy can be relied on. He did not observe the sandy inlet by which the Murray River, lately discovered by Captain Sturt, finds its way to the sea; yet this river probably flows upwards of a thousand miles, and surpasses the Rhine in the length of its course.

We are still far from being in possession of sufficient data for forming a general idea of the interior of Australia. Except a small tract along the western coast, both to the north and south of Swan River, only the south-eastern part of this continent has been explored, and this does not embrace one-eighth of the whole area, and comprehends only the country to the south of 30 S. lat. and to the east of 140° E. long.

This region is traversed by a range of mountains which begins at the most southern point of Australia, Cape Wilson, and runs generally nearly due north up to 28 S. lat. Probably it continues in the same direction or with inconsiderable bends to Cape York, at Endeavour's Strait. The distance between this mountain range and the shore is not everywhere the same. South of 33° lat. it averages, between forty and fifty miles, but at that latitude the range declines somewhat to the west, and continues in this direction to 32, where its distance from the sea is 140 miles, at the sources of the river Hunter. It then turns suddenly to the east, and continues in this direction for about fifty miles, till it again resumes its former course due north or a point or two to the east, and at a distance of about 80 or 100 miles from the shore. The southern range up to 33° is called the Blue Mountains; that portion of it which lies in the direction of west and east bears the name of Liverpool Range; and that which extends to the north of the Liverpool Range has not yet received any name. This chain divides the rivers which cut the coast from those which traverse the interior of Australia. As far as is yet known, the greatest height of this range is near 31° lat., where the mountains rise to 6500 feet and upwards. The Warragong Mountains or Australian Alps, which lie between 35 and 37′ lat. are doubtless higher, some of their peaks being covered with perpetual snow: but they do not form a part of the dividing range, being separated from the mountains of this range and lying farther west. That portion of the range which extends to the west of Sidney appears not to rise much above 3000 feet; Mount York, one of its highest summits, attains only 3292 feet. The average breadth of this range is above fifty miles, and it is difficult to cross, as the higher part consists of steep and bare rocks and deep chasms, and contains only a few passes. This description, however, does not apply to Liverpool Range, where the upper part of the ridges is flat, or forms little hills and valleys covered with fine soil of moderate depth overgrown with grass. A newly-made road leads over this range from Sidney to Bathurst.

The country between the dividing range and the sea may be called rather hilly: the flats which are generally found along the shore are in most places of small breadth, though in some few they extend forty miles inland, and almost to the dividing range itself. These flats have commonly a sandy soil, of indifferent fertility; but the hilly districts of the country, which in a few places, as at Illawara, New Castle, and Port Macquarie, descend to the coast, are of a better description, except where they are composed of bare rocks. The valleys have commonly a strong soil, which in its natural state is covered with large trees, and displays a very vigorous vegetation; when cultivated it gives good crops of grain. South of 33° S. lat. the ridges of the hills and the valleys between them are parallel to the principal range; and here the rivers, of which the greatest

part are only torrents, run in longitudinal valleys, which circumstance gives them a much longer course than they would have if they flowed directly to the sea. Thus the Hawkesbury River has a course of about 200 miles. Its sources are in the mountains which enclose the alpine lakes of George and Bathurst, of which the former is upwards of twelve miles long and about five broad. After the union of several small rivulets the river is called Wallandilly (Sturt) or Wolondilly. After flowing several miles nearly east, it runs for perhaps 150 miles north and north-east, gradually approaching the sea. Near 34° lat. it is joined by the Cox River, and after this junction is called Warragumba. After its junction with the Cataract River, which joins it on the right, it again changes its name to that of Nepean, and before it makes the last great bend to the E.S.E. it takes the name of Hawkesbury: its æstuary is called Broken Bay. The Shoal Haven River, which rises south of 36°, runs for about 80 miles parallel to the sea from S.S.W. to N.N.E., till having approached the Wallandilly, it suddenly changes its direction, and flows nearly east till it discharges its waters into Shoal Haven.

North of 33° lat. the principal valleys are transverse, and the course of the rivers is consequently west and east. The Hunter River runs about 140 miles in the south. The climing, however, considerable [illegible] that of the Hastings course of the M[illegible] miles, as well as that of the Brisbane [illegible], which falls into Moreton Bay, and is navigable twenty miles inland for ships drawing sixteen feet water. (P. Cunningham.)

The interior of Australia, which displays such peculiar features in its form and aspect, may be divided into the region of the Terraces and that of the Plains or Lowlands, and the 148° meridian may be considered as the mean line of division between these two regions: observing, however, that on the south, especially between the rivers Lachlan and Morumbidgee, the Terraces may extend somewhat farther west, and on the north may fall short of this line of division. The terraces, which may be considered as the western declivity of the Mountain range, which extends parallel to the coast, and which has been noticed before, are composed of more or less extensive plains, separated from one another by low ridges of hills. The plains, which often extend twelve miles and upwards, commonly occur in the immediate neighbourhood of some river; sometimes they occupy the high country between two rivers; they are either dead flats or a succession of gently-swelling hills, clear of timber and covered with luxuriant herbage, which affords abundant food to cattle. The low ridges which divide them are covered with open forests, through which the horsemen may gallop in perfect safety, and are generally considered as excellent grazing tracts. Captain Sturt observes that these ridges decrease in height as they proceed to the west, and adds, as a peculiarity, that every ridge presents a new rock formation. He found successively serpentine, quartz in huge white masses, granite, chlorite, micaceous schist, sandstone, chalcedony, quartz, red jasper, and conglomerate rocks. The quantity of sheep and cattle which pasture on these terraces is already numerous, and by far the greatest part of the wool exported from Sidney is furnished by the sheep of this district. Some of the terraces are better adapted for cattle than for sheep, and are noted for their dairies, as Bathurst Plains.

Nearly all the rivers which drain these terraces rise in the dividing range, and are full and rapid, though not well adapted to navigation. Before they descend into the Lowlands which extend farther to the west, they join one another, and form a few large rivers. Such are especially the Morumbidgee, the Lachlan, and the Macquarie. The Morumbidgee, which originates in the mountainous country uniting the Warragong mountains with the dividing range at some distance to the south of Lake George, runs in a north-western direction until it issues from the mountains and enters the terraces, where it joins the Yass river: after the junction, it drains the terrace region, and enters the Lowlands to the west of 148° long. It is in this part of its course a rapid and fine river. The sources of the Lachlan, called by the natives Colare, are not yet known; but it is supposed that they lie at no great distance north of Lake George, and that the upper course of this river is in the same direction as that part which is known, from south-east to north-west. It descends into the Lowlands to the west of 148°, without joining any other considerable river during its course through the terraces. The Macquarie is supposed to rise near the point where the 34° parallel is cut by the 150° meridian, but its course is only known where it approaches the road leading from Sidney to Bathurst. Here it is called the Fish River, but uniting, before it reaches the town of Bathurst, with the Campbell River, it takes the name of Macquarie, and continues its course to the north-west, through a fine country, till having formed a cataract near the 148th degree of longitude, it enters the Lowlands. Only 240 miles of its whole course, which is above 600 miles, belong to the Lowlands.

It is remarkable that the courses of these rivers decline more to the northward in proportion as they are farther from the southern coast. This peculiarity is still more visible in the rivers which drain the terrace region between 32° and 30° S. lat. This portion of the region, which is yet imperfectly known, and only in its southern districts, seems to consist of a number of longitudinal valleys, in which three large rivers, the Peel, the Field, and the York, run nearly south and north. The country traversed by these rivers is enclosed by two high ranges, the dividing range and another farther to the west running nearly along the 150° meridian, the highest known part of which is called Hardwicke Range. [illegible] change their course, and declining to the west, to descend into the Lowlands.

The country south of the Morumbidgee appears likewise to differ from the general character of the Terraces. Captain Sturt describes it as a district whose surface is hilly, broken, and irregular, containing deep ravines and precipitous glens: farther to the south, where the Warragong Mountains raise their summits, mountains succeed mountains, and are overtopped by lofty and distant peaks. This portion of the Terraces is still less known than that to the east of Hardwicke Range.

The Lowlands join the Terraces on the west; their extent in that direction, as well as to the north, is not known. Captain Sturt, who advanced on the north beyond the 145° meridian, and on the south beyond the 140°, found that the country preserved, as far as he was able to see from some hills, the same uniform appearance of an immense level plain. This extensive country resembles as little the plains of South America, covered with abundant grass, as the African Sahara, with its moving sands: it seems to approach in character to the wide steppes which surround the Lake of Aral and extend to the Caspian Sea and the Ural Mountains. But we are inclined to think that they are somewhat better adapted to sustain inhabitants than the steppes of Asia. These plains of Australia are, in many parts, extremely level; in others, they are slightly undulating; and here and there, but at great distances, sometimes of more than 100 miles, a sandy eminence rises, which hardly deserves to be called a hill: the loftiest of these eminences are not above 300 feet higher than the plain on which they stand.

All over this extent of country the soil presents only two varieties: it is either a red sandy loam or a white coarse sand. In some places it is entirely destitute of vegetation, at others it nourishes only salsolaceous plants, without a blade of grass between them. Others again are covered with polygonum, a gloomy and leafless bramble; and in a few tracts patches of ground are discovered which appear to be moist, and in which the calystemma is abundant. Such patches probably form quicksands in the rainy season. Those parts of the plains which seem to have the best soil produce stunted gum-trees and cypresses. Large tracts of country are covered with shells and the claws of crayfish, and this soil, although an alluvial deposit, is superficially sandy. They bear the appearance not only of being frequently inundated, but also of the floods having subsided upon them. On their surface no accumulation of rubbish is observed, so as to indicate a rush of waters to any one point; but numerous minor channels are traced, which evidently distribute the floods equally and generally over every part of the area which is subject to them.

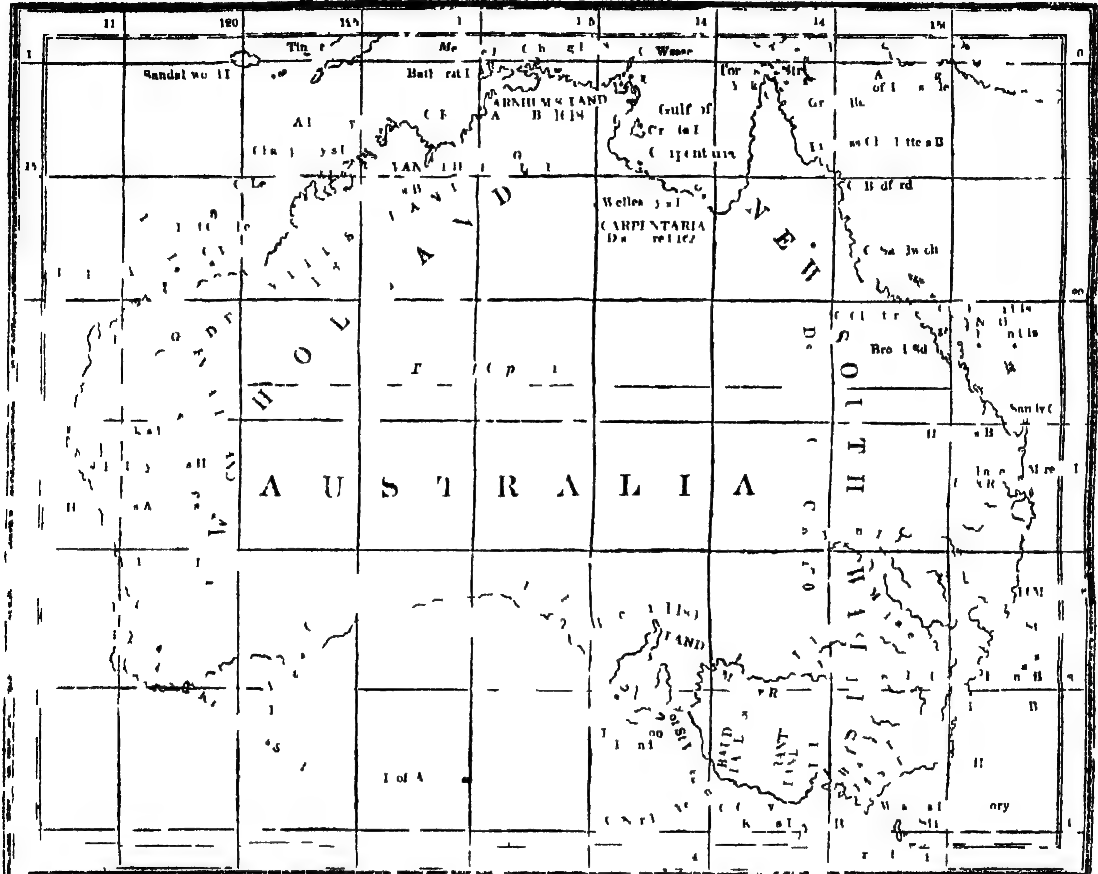
'My impression,' says Captain Sturt, 'when travelling the country to the west and north-west of the marshes of the Macquarie, was, that I was traversing a country of comparatively recent formation. The sandy nature of the soil, the great want of vegetable decay, the salsolaceous character of the plants, the appearance of its isolated hills and flooded tracts, and its trifling elevation above the sea, severally contributed to strengthen these impressions on my mind.'

It would appear that these plains insensibly decrease in

elevation above the level of the sea, as they approach the southern shores of the continent. The cataracts of the Macquarie are 680 feet above the sea, that place on the Lachlan, where Mr. Oxley formed a depôt, 500, and the maximum height of the high banks of the Murray, where that river begins its southern course, is only 300 feet.

The rivers which traverse this region descend from the terraces as large and full watercourses, but after having run in the lowlands a considerable distance, they change their character. Instead of increasing in breadth, depth, and volume of water, they begin to diminish in all these respects. This is partly to be attributed to the sandy soil through which they flow, and partly to the want of tributaries to replace their loss of water. Captain Sturt observed that in the course of 310 miles the Morumbidgee was not joined by one stream of running water.

A still more remarkable characteristic of this region is, that some of its large rivers terminate in marshes covered with reeds. Captain Sturt describes the termination of the Macquarie in the following terms: 'At some distance inland, the marshes, the reeds were of great height. The channel of the river continued as deep and broad as ever, but the flood did not appear to have risen more than a foot above the banks, which were now almost on a level with



the water, and the current was so sluggish as to be scarcely perceptible. These general appearances continued for about three miles, when our course was suddenly and most unexpectedly checked. The channel which had preserved so well without any change in its breadth or depth ceased altogether, and while we were yet lost in astonishment at so abrupt a termination of it the boat grounded. Examining this spot with peculiar attention, two creeks were discovered, so small as scarcely to deserve the name, and which would, under ordinary circumstances, have been overlooked. One branched off to the north, the other to the west. The former extended about thirty yards and the latter about twenty yards where they terminated.'

The large rivers traversing the lowlands, which always have water in their channels, are the Morumbidgee and the Murray, the Lachlan, the Macquarie, and the Darling.

The Morumbidgee, which reaches the lowlands west of 148° long., flowing in a western direction, declines further to the north west, and is joined by the Lachlan in 34° 30′ S. lat., and 143° 30′ E. long. Farther down, it unites with the Murray, a much larger river, which is 350 feet broad, and from 12 to 20 feet deep at this junction, but whose sources, as well as the upper course, are utterly unknown. Its transparent waters run over a sandy bed at the rate of two and a half miles an hour, and its banks, although averaging 18 feet in height, are subject to floods. After this junction the river preserves the name of Murray. In 141 long., it is joined by another large river, a hundred yards wide and rather more than twelve feet deep, which is supposed by Captain Sturt to be the Darling. Up to this junction the Murray continues to flow to the W.N.W., but afterwards its course is changed to the S.W., and the river is considerably increased in size. As it approaches the 140° meridian it tends to the south, and in this direction it flows into the Lake Alexandrina, which is 50 miles long and 40 broad, but generally very shallow. The water of the lake is brackish, and it communicates with the sea at Encounter Bay, by a passage impracticable even for the smallest boats. The river Murray, however, is navigable for vessels of considerable burden, being, for 50 miles from its mouth, 350 yards broad and from 20 to 25 feet deep.

The Lacflan river, after descending into the lowlands, traverses considerable marshes in 147° E. long., and, shortly after issuing from them, it changes its course from north west to south west. Flowing in this direction to 145° long., it again enters some marshes, which appear to be much more extensive, and to continue to the place where the river joins the Morumbidgee, 143° 30′ E. long.

The Macquarie may be considered as entering the low lands at the place where it forms a cataract, 148° 3′ E. long., and 31° 50′ S. lat. It soon afterwards diminishes very much, and scarcely deserves to be called a river at Mount Harris, where its current is very sluggish. At no great distance farther to the north it enters the marshes, but Captain Sturt discovered a channel, which is commonly dry, by which the superabundant water of the marshes, after long rains, is carried off to the Morrisett Ponds and the Castlereagh River, and thus to the Darling.

The Darling has only lately been discovered by Captain Sturt. He traced its course between 148 and 147° E. long., and under 30° S. lat., for about 15 miles, and again, between 146° and 144° 50′ and 29° 30′ S. lat., for about 66 miles. At the first place the river runs nearly from east to west; and, in the second, its course is directed to the S.W. That both currents belong to the same river is proved by their water being equally salt, and though not quite so salt as that of the ocean, its taste is precisely the same, and it is unfit to drink. In its bed several brine wells were discovered. Captain Sturt is inclined to think that the river which joins the Murray, where this latter begins to run southward, is the Darling, though he observes that the waters of that river are not brackish.

The climate of Australia differs considerably from that of other countries. The most remarkable as well as the most unfavourable character is the long droughts which occasionally prevail. Captain Sturt says, 'The year 1826 commenced the fearful drought to which we have reason to believe the climate of New South Wales is periodically subject. It continued the two following years with unabated severity. The surface of the earth became so parched up that the minor vegetation ceased upon it. Culinary herbs were raised with difficulty, and crops failed even in the most favourable situations. Settlers drove their flocks and herds to distant tracts for pasture and water. The interior suffered equally with the coast, and men at length began to despond under so alarming a visitation. It almost appeared as if the Australian sky was never again to be traversed by a cloud.' These seasons without rain appear to occur every ten or twelve years. They are succeeded by excessively long rains, but afterwards the rains decrease gradually year after year until they again wholly cease for a time.

Another peculiarity is the quick transition from heat to cold. There are instances of the thermometer having sunk 25 degrees in fifty minutes. This is owing to the sudden change of the winds. The north-west winds blowing over the great sandy deserts in the interior attain such a degree of heat, that they become too scorching to be pleasant to men and animals, or to be favourable to vegetation. The thermometer then rises suddenly from 80 to 110. On the other hand, the south-eastern winds are often very cold and piercing, especially when there is a sudden shift from a hot north-western.

But, in spite of such occurrences, which are to be considered as exceptions, the climate, though somewhat too dry, is commonly delightful, and the evenings and mornings as pleasant as in southern Italy. Even the great heat which occurs does not produce relaxing and enfeebling effect on the constitution. On the lower part of the coast the thermometer ranges in summer (from September to March), between 36° and 106, its mean elevation being 70; and in winter (from March to September), between 27° and 93, its mean being 66.

In the interior, and to the west of the mountain ranges, the wet season commonly takes place during the summer; on the coast, it commences in the beginning of the winter. Mr. Oxley thinks the westerly winds which prevail during the winter drive back the vapours collected from the sea, which, being attracted by the eastern declivity of the mountains, descend in rain on the country between them and the sea; but that the easterly winds which prevail during the summer, carry the vapours over the mountains, which, being there attracted by the western declivity of the mountains, are condensed into rain.

Dews are very frequent and heavy, and sometimes they fall like a drizzling rain. Hail-storms are common in December and January.

On the low coasts frost is very little felt, but in the hilly districts it is frequent, and very keen on the high terraces on the western side of the mountains, especially on the plains of Bathurst, and the plains contiguous to them; these districts are 2000 feet above the sea. It is likewise observed, that in these parts of the country the seasons are nearly a month later than on the low district on the coast. The snow lies on the tops of the mountains, and occasionally also in the valleys, for many days together; but it is absolutely unknown in the neighbourhood of Sidney and other parts of the coast.

The climate on the eastern coast is very favourable to health, and endemic diseases are not known, with the exception of ophthalmia, which occurs in the months of October and November, and is produced by the winds which prevail at that time. These winds, in general, are not unpleasantly warm, but they resemble in some measure, the English easterly winds which blow in April and May: like them, they occasion blights in vegetation, and are considered as the cause of the then prevailing ophthalmia.

Many of the islands belonging to Australia contain volcanoes, and a few seem to have been produced by volcanic agency. In all those islands volcanic products abound.

IV. *The Man of Australia.*—The natives of this portion of the globe belong to two races—to the Malay, and to another, which seems to constitute a separate division of the human race: the men of this second race, from their resemblance to the African negro, have obtained the name of Australian negroes, or Austral negroes. The first race occupies all the islands to the north of the equator, and to the south of it those which lie to the east of 20° W. long. The Austral negroes are extended over the continent, as well as over Van Diemen's Land, New Caledonia, the New Hebrides, New Britain, the Solomon's Archipelago, and New Guinea. In the last-named island, they go under the Malayan name of Papuas, which sometimes is used to indicate the whole race. The same race inhabits the Andaman Islands, as well as the interior of some islands of the Indian Archipelago, and a few families are scattered in the central parts of the peninsula of Malacca. [See MALAYS.]

The Austral negroes, though they are considered by Cuvier as being a branch of the African negroes, resemble them only in the colour of the skin and their woolly hair; yet even their skin is not quite black like that of the Africans, but of a sooty brown. They differ widely from them in the form of the head and face, and of the whole frame. Their forehead rises higher and the hinder part of the head projects more than in the negro. The nose is not so much flattened, and the lips are not so thick. The upper lip is larger and more prominent, and the lower projects so much that the jaws to such an extent as to divide the face into two parts. Their limbs and the whole frame of their body are lean, and display nothing of the muscular strength by which the African races are distinguished. The greatest difference in the formation of the human body is found to exist between the Caucasian race and the Austral negroes. This race seems to be purest in Van Diemen's Land and in New Guinea, the inhabitants of the continent and of the other islands having probably been crossed by some other race, perhaps the Malay.

The Austral negroes may be considered as still living in the lowest state of civilization. Cannibalism is common among them, and they do not deny it; they have neither habitations, nor do they wear garments, at least not the men; the women commonly wrap themselves up in a piece of cloth made of opossum skin, or in a blanket. Whenever they intend to pass the night they kindle a fire and place a sheet of bark or a bough to windward for shelter. This want of habitations is mainly to be attributed to their being continually on the move in search of food. For in some places along the coast, where fish and oysters are so abundant as to afford them a constant supply of food for the greater part of the year, they have erected convenient huts of tea-tree bark, which they clean daily. (P. Cunningham.)

They have no chief, either elected or hereditary, and the authority of a man depends on his personal strength, and his cunning. They believe in a good spirit, *Koyan*, and in a bad one, *Potoyan*. The former is thought to watch over and protect them from the operations of the latter, and to assist them in recovering strayed children, which the other is supposed to decoy for the purpose of devouring them.

They are not delicate in food. When pressed by hunger they devour grubs, snakes, stinking whales, and even vermin, with eagerness.

They are lively, good-humoured, inquisitive, and intelligent, and acquire the knowledge of reading and writing almost as speedily as Europeans; their senses are extremely acute, and they possess great powers of mimicry.

Their number is not great, and it was thought that the interior was uninhabited, but Captain Sturt found them in most places, and on the banks of the Murray more numerous than anywhere else.

V. *Division and Settlements.*—The northern and western coasts are commonly comprehended under the name of New Holland, which was given to them by the Dutch after having discovered these parts; by this term the whole continent is sometimes designated. The several parts on the

northern coast are Carpentaria, round the gulf of the same name, Arnhem's Land, Van Diemen's Land, De Witt's Land; and on the western coast Endracht's Land, Edel's Land, and Leeuwin's Land. One half of the southern coast is called Nuyt's Land; after this follow Flinders' Land, Baudin's Land, Grant's Land, and Bass's Land: the eastern coast, which properly should be called Cook's Land, bears the name of New South Wales.'

The English are the only nation who have founded settlements on the continent of Australia. The colony of Botany Bay, or Sydney, is in a flourishing state, but the others have not yet firmly taken root. Settlements are made on the eastern coast at Moreton Bay, on the southern at Western Port and King George's Sound, on the south-western at Swan River, in Edel's Land, and on the northern at Melville Island, opposite Van Diemen's Bay. A new colony is to be founded at Port Lincoln, on Spencer's Bay, on the southern coast, between King George's Sound and Western Port. (See these articles.)

The last mentioned colony has received the grant of an immense territory, which extends along the coast from Fowler's Bay on the west, to beyond Cape Northumberland, or from 132 to 141 E. long., and comprehends Flinders' Land and Baudin's Land. Towards the north, the boundary is to extend to the Tropic of Capricorn. A very small extent of it about Spencer's Gulf, that of St. Vincent, and on the Murray River, is imperfectly known, the remainder utterly unknown.

The colony of Van Diemen's Land appears to be in a flourishing condition. (See Van Diemen's Land Almanac for 1833, and TASMANIA, under which more appropriate name we intend to describe this island.)

AUSTRALIA, BOTANY OF. There is no part of the world the vegetation of which is so unlike that of all other countries as the middle and southern parts of New Holland. The plants, like the animals, are, to a very considerable extent, of so peculiar an organization, that a large proportion of the genera, and some entire natural orders, are absolutely unknown beyond its shores or dependent islands. So different from others are many of the commonest plants, that Burman, a Dutch botanist, of the school of Linnæus, actually mistook one of the leguminous species for a fern. Trees are there with the leaves twisted constantly out of their ordinary position, and with their functions inverted (*Eucalyptus*), or with transformed and dilated leaf-stalks performing the office of leaves (*Acacias*), and this so commonly, that, according to the computation of Dr. Brown, 'if taken together, and considered with respect to the mass of vegetable matter they contain, calculated from the size as well as number of the individuals, they are perhaps nearly equal to all the other plants of that country.'

Considering how imperfectly the vegetation of this remarkable continent has been examined, that of its shores or maritime districts being the only part regarding which we have any exact information, and considering, also, how little has been published concerning that portion of its flora which has been collected, we cannot be expected to give more than a sketch of the general relation of its plants to those of other countries, together with notices of a few of the most curious and characteristic of its vegetable productions.

Perhaps the best method of explaining the nature of the peculiar vegetation of New Holland will be by offering, in the first place, a general view of the characteristic forms of the flora within the colony of Port Jackson, and to the southward of it, including Van Diemen's Land; and by afterwards explaining how it alters in character as it approaches the north, till it finally melts into that of the Malayan archipelago.

In the southern parts of Australia we find the concentration of all those curious forms of vegetation for which the country is so remarkable. Forests, consisting of many species of gigantic *Eucalypti*, by the settlers called gum-trees, many of which are a hundred and fifty feet high, with a girth of from twenty-five to forty feet; among which are intermingled wattle-trees (*Acacias*), with their countless myriads of yellow tufted flowers and bean-like pods; wild figs, of enormous size, furnishing a grateful food to regent birds (*Sericulus chrysocephalus*), blue pigeons, and swamp pheasants (*Cuculus Phasianus*); and in some places numerous *Seaforthia* palms constitute the wooded part of the country. In shaded places near Port Jackson, the *Corypha Australis* outspreads its umbrageous leaves, heavily contrasting with the light and delicate many-parted fronds of occasional tree-ferns. Nettles of an arborescent habit, from fifteen to twenty feet high, are not uncommon, to which may be added multitudes of proteaceous plants, with their hard and woody leaves, giving a most singular appearance to the places where they grow; hair-branched weeping casuarinas, and myrtaceous plants with white blossoms studding their deep green box-like leaves, or with tassels of yellow, purple, or crimson stamens, contribute to produce the first sensation of surprise in a stranger who explores the wilds of the uncleared country. But it is among the plants of a smaller growth and a less conspicuous appearance that the botanist recognises the greatest number of new and strictly Australian forms. The thousands of compound-flowering plants are all of a structure with which he is unacquainted elsewhere: in place of the heaths and the geraniums, the ixias, and other irideous plants, the fig-marigolds, and wood sorrels, that diversify so beautifully the under-growth of the Cape of Good Hope, he finds thousands of *epacrideæ*, some with scarlet, and many with lilac, or white, or rosy blossoms, purple *tremandreæ*, polygaleous plants, yellow-flowered species of the *dillenia* tribe, looking like shrubby buttercups, and vast numbers of yellow-and-brown-flowered decandrous papilionaceous bushes. The *orchideæ* of the Cape and of the southern districts of South America are represented by totally different genera, having, however, a more decided resemblance to those of the latter than of the former country; while the *diosmeæ* of those two regions are unknown, although the order exists in abundance in the form of the exclusively Australian genera, *phebalium*, *boronia*, *zieria*, *correa*, and *eriostemon*, which give a striking appearance to many places. The common weeds, too, of the land are often not less peculiar: many of the umbelliferous plants are remarkable objects, especially the beautiful [illegible] *cærulea*; while *Goodenoviæ*, a curious tribe nearly related to *Lobelias*, and *Stylideæ*, still more singular objects with a slender irritable column of stamens, contribute here and there to the wonders by which the traveller is astonished. If to these we add a rich sward of grasses, among which the kangaroo grass (*Anthistiria Australis*) is invaluable to the colonist; festoons of the lovely *Tecoma Australis*, a climbing trumpet flower; pines belonging to the genus *Callitris*, and resembling cypresses; little twining *Billardieras*, with narrow bells of green or yellow; the singular *Zamia* with the trunk of a dwarf palm and the leaves of a fern, which, with xanthorrhæa, are characteristic of soil that the settler will do well not to select; and finally, extensive plains in the interior terminating in morasses choked up with gigantic reeds—the botanist may form some idea of the vegetation in the parallel of Port Jackson.

To the southward it changes but little to the eye of the ordinary observer, although the naturalist may discern signs of an approach to a colder than European climate in the buttercups, anemones, and polygonums, that appear in abundance in the high land of Van Diemen's Land. Malvaceous plants become uncommon, casuarinas gradually disappear, palms shrink before the cold blasts from the southern pole and migrate northwards; and but a single species of tree-fern extends its territory to Van Diemen's Land. The celery-topped pine (*Podocarpus asplenifolia*), whose leaves taste as well as look like those of the plant from which it derives its name; and some species of *callitris*, form trees of remarkable appearance, rising on the sides of the mountains to the height of 4000 feet, and growing from 50 to 70 feet high.

Towards the westward the same general characteristics of the scenery, varied chiefly by soil, mountains, or other circumstances, still continue to exist. The shores of the promontory of Cape Jervis are bordered with mangrove swamps, and the mountainous land at the back of the coast line is covered with trees of more than ordinary size: on the very brow of Mount Lofty, at 2400 feet above the level of the sea, trees have been measured of forty-three feet girth. The vegetation of the neighbouring districts is said, however, to be of a far less luxuriant description, the country separating St. Vincent from Spencer's Gulf, and the magnificent roadstead of Port Lincoln itself, being extremely sterile; and Kangaroo Island being probably far from fertile, on account of its great number of salt-water swamps. Captain Sutherland, indeed, gives a much more favourable description of the country in this division of the continent, but the quality of the soil has not yet been satisfactorily ascertained.

About King George's Sound, the extreme south-western

portion of the continent, the general appearance of the country, although of a barren nature, is very picturesque. The hills are strewed with a profusion of beautiful shrubs, flourishing among immense blocks of granite; *Banksias*, one of which is called by the colonists wild honeysuckle, are of extraordinary beauty; grass-trees are abundant; and the forests consist of swamp oaks (*Casuarina*) and gum trees (*Eucalyptus*), the timber of which is, however, usually decayed at the heart. No grass fit for pasture grows on the plains, which are overrun with a coarse herbage. Culinary vegetables, in the form of a kind of parsley (*Apium prostratum*), and of a common European species of orach (*Atriplex halimus*), are abundant in a wild state, and afford the settlers an agreeable food. Here occurs a singular exception to the almost universal law in the vegetable kingdom, that truly parasitical genera are incapable of growing in the earth: on all the coasts of Australia the *Loranthus* is found growing sparingly like misletoe upon the branches of eucalyptus, casuarina, acacia, and melaleuca; but in King George's Sound a terrestrial species occurs forming a small tree fifteen feet high.

The flora of Swan River, as it is produced in a more northern latitude, changes a little from that of King George's Sound. The plants consist principally of species belonging to the *Protea, Myrtle, Epacris*, and *compound-flowered* tribes, and to the leafless part of the genus *Acacia*. The singular production called grass-tree by the colonists (*Kingia Australis*) rises upon the sandy plains in solitary uncouthness in the shape of scorched and blackened cylindrical trunks, terminated by tufts of long grassy leaves.



[A, Grass Tree (Kingia Australis).—B, Xanthorrhœa.]

A remarkable species of *Xanthorrhœa*, a *Zamia* with a stem sometimes thirty feet high, many individuals of the genus *Casuarina* remarkable for their long, weeping, thread-like branches, and some of the pine tribe, belonging to the genus *Callitris*, and resembling the Norfolk Island pine in character, give a peculiar character to the landscape. Kangaroo-grass is said to form here, as at Port Jackson, a rich and luxuriant herbage; *Banksias*, which at King George's Sound are only small trees, here acquire extraordinary dimensions, one of them (*B. grandis*) occurring 60 feet high, and more than 2½ feet in diameter. A noble species of gum tree (*Eucalyptus calophylla*) forms a beautiful object in the scenery. The latter, and several other species of the same genus, here, as in so many other parts of Australia, form the common timber of the country. Magnificent melaleucas with scarlet flowers abound, together with leptosperma resembling weeping willows, and fragrant species of *metrosideros*, all cut off from the river by a belt of rushes of great height and thickness. The island of Buache is overrun with immense thickets of a solanum, ten feet high, and multitudes of arborescent species of metrosideros.

It is especially deserving of mention that in this part of the continent the vegetation of the singular plants called by botanists proteaceous, while it retains its own peculiar Australian features, yet presents a greater resemblance to the corresponding part of the flora of South Africa than that of the east side, among which a perceptible tendency to the South American forms exists, according to the observation of Dr. Brown.

Turning from this side of the continent, and resuming the consideration of the flora of the eastern coast, we find that as we approach the equator from the colony of Port Jackson, the appearance of the plants gradually changes. But a little to the northward a variety of differences are observable; the little billardieras all disappear, the araucaria pine begins to meet the view in Norfolk Island, and becomes plentiful within the influence of the sea air; the singular genus *Pandanus*, which looks like a pine-apple



[Pandanus.]

growing on a palm trunk, rears its slender stem among the woodland scenery; the blue gum-trees (*Eucalyptus piperita*) acquire stupendous dimensions; and a singular proteaceous plant resembling *Knightia excelsa* appears as a common timber tree.

Near Moreton Bay the tops of the mountains are covered with a vegetation similar to that which is common at Port Jackson, the difference in latitude and the approach to the equator being, as usual, compensated by elevation of surface. In the low lands, the forests abound in a gigantic nettle, and in the valuable chestnut bean (*Castanospermum Australe*), whose seeds, when roasted, afford a wholesome nutriment to the natives. Here also, in the forests near Brisbane Town, Mr. Frazer observed 'several species of ficus upwards of 150 feet high, inclosing immense iron bark trees (*Eucalyptus resinifera*), on which originally the seeds of those fig trees had been deposited by birds. Here they had immediately vegetated, and thrown out their parasitical and rapacious roots, which adhering close to the bark of the iron-tree, had followed the course of its stem downwards to the earth, where once arrived their progress of growth is truly astonishing. The roots of the ficus then increase rapidly in number, envelope the iron bark, and send out at the same time such gigantic branches, that it is not unusual to see the original tree at a height of 70 or 80 feet, peeping through the fig as if itself were the parasite on the real intruder. In the singular angles or *walls*, as they are termed, which are formed by the roots of these trees, and

of which many are sixteen feet high, there is room enough to dine half a dozen persons.' (See Hooker's *Botanical Miscellany*, vol. i. p. 241.) Native cherries (*Exocarpus cupressiformis*) abound, *Gyrostemon* emulates the weeping willow with its pendulous branches; and extensive districts of araucaria pine form, by their sombre green colour, a striking contrast to the brownish hue of the gum trees. The open parts of the forests contain an immense quantity of yellow wood (*Oxleya Xanthoxyla*), with silk oaks (*Grevillea venusta*), and a great profusion of magnificent trees. The beach is in some places ornamented with *Hibiscus tiliaceus*, and native bread-fruit (*Pandanus pedunculata*): in other places it is thickly clothed with mangroves. What are called by the colonists apple trees (*Angophora lanceolata*), in remembrance of the grateful fruits of their native country, appear on the richest forest land, along with the eatable tarra root (*Caladium glycyrrhizum*), and many remarkable ferns. Xanthorrhœa also, of which mention has already been made, is described as forming 'a truly superb object, with its extraordinary bee-hive tops.'

Approaching towards the north, the araucaria still continues common; palms increase in number; a rattan (*Calamus*) is most abundant in a damp tract thickly wooded with forest, between 15° and 17° S.; and a most extraordinary caper tree, with the dumpy but enormous form of the Baobab of Senegal, forms a striking feature. At last, on its northern shores, all the forms of Australian and Malayan vegetation are blended; species of *sida* and *hibiscus*, which were rare in the south, become common; and *Banksias*, the most Australian of Australian plants, disappear; *Eucalypti* indeed remain, and a *melaleuca* or two, like the cajeput tree; but an abundance of *Cinchonaceæ* and other Malayan forms almost overpower the effect that the former produce upon the eye. Cabbage palms (*Livistona inermis*), but too small to be of value as a fresh vegetable, are abundant: plants allied to the nutmeg and sandal wood are not uncommon; and *Casuarinas* and *Pandanus* contribute to confound the Australian character of the vegetation with that of the Indian Archipelago.

It is a common observation, that New Holland does not produce a single native species of eatable fruit; although exotic fruits thrive exceedingly in the genial climate of many parts. This remark is very nearly correct; for it is true that, with the exception of the Australian cranberry (*Lissanthe sapida*), and a few berries of scarcely any importance, the country is, as far as has yet been seen, entirely destitute of anything which could by possibility be introduced to a dessert.

(See Brown's *Appendix* to Flinders's *Voyage to Terra Australis*; Cunningham's remarks in the *Appendix* of King's *Voyage to New Holland*; and various papers by Brown, Cunningham, Frazer, Nind, &c., in the *Journal of the Royal Geographical Society*, and in Hooker's *Botanical Miscellany*.)

AUSTRALIA, GEOLOGY OF. We possess so few facts respecting the geological structure of Australia beyond an enumeration of a limited number of localities in which granite, limestones, sandstones, and other rocks, distinguished only by their mineralogical characters, occur, that to attempt even general comparisons with the known European deposits would be entirely useless. The mere occurrence of granite at any given place affords in itself no information as to its relative antiquity, since this rock, considered mineralogically, has been detected in situations where it must have been protruded subsequently to the deposition of the European cretaceous series. We therefore, in the absence of the necessary evidence, cannot refer the granites of Australia to any particular geological epoch; they may, indeed, be referable to several epochs, as is the case with the European granites. From the desire to consider all rocks in different countries as equivalent to some one or other of the European deposits, the red sandstones which prevail round Cambridge Gulf, at York Sound, and in other places on the northern coast, which are found at St. Vincent's Gulf on the southern coast, and which occur at Yass Plains and other situations in the interior, have been called old red sandstone. Their claim to be thus distinguished is merely mineralogical, and therefore of little value, as is now well understood by geologists. A limestone also, which appears to range with considerable thickness from the vicinity of Bathurst, both in northern and southern directions, has been termed carboniferous for the same reason. A particular kind of fossil-shell, named a *spirifer*, has indeed been detected in it; but this in itself affords little information, since even with reference only to European rocks, this genus is found, from the grauwacke to the lias inclusive. The coal and associated bed of sandstone and shell, which occur extensively on the eastern coast from Port Stevens to Botany Bay, occasionally ranging into the interior, have been considered equivalent to the coal-measures of Europe, merely from their mineralogical characters. What the age of this Australian coal deposit may be we have no means of accurately judging; but it is worthy of remark, that a fossil plant (*Glossopteris Brouniana*) detected in it is also discovered in the Damuda coal district in India. The coal itself appears to be abundant, and generally of good quality. Mr. Cunningham states that four thousand tons of it are annually raised at the Newcastle mine, producing 4000*l.* at Sydney. As iron ore appears to be also abundant on the same line of coast, we may conjecture that at some future period the eastern side of Australia may be studded with iron foundries, distributing their products over southern Asia, and among the numerous islands of the Indian and Pacific Oceans.

Trappean rocks, varying as usual in their mineralogical structure, appear to be common in various parts of Australia, but their relative antiquity and their general mode of occurrence are alike unknown to us. The Mittagong range, to the S.W. of Sydney, is stated to be composed of these rocks, and to rise from amid the sandstones of the district in a manner which might lead us to suppose that it had been protruded through them.

Mr. Sturt, in his passage down the Murray, crossed a considerable extent of country occupied by a fossiliferous deposit, composed of little else than a mass of shells. He estimates the thickness of this deposit to be considerable, and that it rises to the height of about 300 feet. He has noticed and figured many of its organic contents (see Sturt's *Two Expeditions in the Interior of Southern Australia*), whence he infers its supracretaceous or tertiary character. Be this as it may, an immense mass of marine shells has probably been accumulated at an epoch long subsequent to those of the limestones and coal deposits previously noticed. Relative changes of the levels of sea and land have afterwards taken place, by which the highest part of the deposit is now raised 300 feet above the sea. As yet no other rock apparently of the same date has been noticed in Australia.

The fact which in the order of geological events next claims our attention, is the occurrence of the bones of mammiferous animals in clefts and caves, in the same manner as those observable in the ossiferous caverns and clefts of Europe. The caves and fissures are in the limestone district, previously noticed as extending to the northward and southward of the vicinity of Bathurst. The principal cave is in Wellington Valley, through which the river Bell flows, one of the principal sources of the Macquarie. The breccia in which the bones are found is a mixture of fragments of various sizes, cemented by a red earthy calcareous matter, resembling in mineralogical character the cement of the osseous breccias of the Mediterranean. According to Baron Cuvier and Mr. Pentland, the bones found in the osseous breccia of Australia by Major Mitchel, and forwarded to Paris, consisted of the remains of fourteen species of animals, referrible to the following genera: *Dasyurus*, or devil of the colonists, three species, one of which does not appear to differ from the *D. Macrourus* of Geoffroy; *Perameles*, one species; *Hypsiprymnus*, or kangaroo rat, one species; *Macropus*, or kangaroo proper, three or four species; *Halmaturus*, three species; *Phascolomys*, or wombat, one species; a small animal of a new genus, and of the order *Rodentia*; elephant, one species; and a saurian reptile allied to the genus Gecko. Now, it is worthy of remark, that only four or five of these animals are known as existing species. Certainly, no elephant has been detected in Australia; and there is no reason to suppose that it now exists in that country. The evidence derived from these remains points to a change in the animals of the country since this osseous breccia was formed, both as respects one remarkable genus, the elephant, and the species of existing genera. And it is further interesting to observe, that the remarkable marsupial animals, which, with few exceptions (see p. 127), are confined to Australia, have been the inhabitants of that part of our planet from a period that may perhaps be considered equivalent to the residence of elephants, rhinoceroses, tigers, hyænas, &c. in the British islands. We may, perhaps, further infer, that since that

period there have been no movements in the solid crust of our globe, or that part of it which should permit any land to form a communication between Asia and Australia, and thus admit the passage of animals from one continent to the other. The elephant has ceased to exist, and its place has not been supplied from Asia; and, on the other hand, the kangaroos and that tribe of creatures have not roamed into Asia.

It only remains for us to notice some considerable and apparently recent accumulations of sands, principally composed of comminuted sea-shells, in certain parts of the coasts of Australia. They have been found in the gulf of Carpentaria, but are particularly remarkable on the western coast, especially in the vicinity of the new settlement of the Swan River. They are distinguished by concretions which appear to have been formed round vegetable substances that have for the most part disappeared. Archdeacon Scott (*Proceedings of the Geological Society of London*) states that, to the east of the intended town of Freemantle, 'the sandstone assumes the character of a thick forest, cut down about two or three feet from the surface, so that to walk on it becomes extremely difficult, and even dangerous.' Much light is thrown on this kind of deposit by the observations of Dr. Clarke Abel, on a bank rising one hundred feet above the sea, at the Cape of Good Hope; for he detected the accumulation of sand round *fuci*, the calcareous matter producing a cement, which retained the other particles of sand together after the decomposition of the plant. This would also appear to have been the case with the Australian deposit, which, according to Archdeacon Scott, attains a height of 300 feet above the sea at Mount Eliza, ten miles from the mouth of the Swan River. It is there based on red sandstone, which appears to be associated with red marl and gypsum, and to constitute the country up to the sienitic mountains of Darling's Range, among the argillaceous slates of which roofing-slate has been detected.

The mineral riches of Australia have been little explored. Iron and coal are, as above noticed, abundant; copper is stated to have been found in Cumberland, and tin and lead are also said to have been discovered. Large tracts of limestone occur on the eastern side; clays fitted for the economical purposes of life are common, even in the vicinity of the principal town of Sydney; there are numerous sandstones which seem well adapted for ornamental buildings; gypsum is found abundantly in the clay or marl extending from Bathurst to Hunter's River, and in the vicinity of Swan River; and there is roofing-slate both in the eastern and western parts of Australia.

AUSTRALIA, ZOOLOGY OF. In treating of the zoology of Asia and America, occasional allusion was made to the influence which the natural productions, animal as well as vegetable, of large continents must have had upon the early civilization of their aboriginal inhabitants. We are not aware, indeed, that this influence has been properly appreciated by those who have investigated the origin and progress of human society; if perceived at all, it has been in a vague and imperfect manner; yet a very little consideration will convince us that it i in reality one of the circumstances which bears the most intimate relation to this important subject, and that it consequently merits the most serious attention, not of the professed zoologist alone, but more especially of the philosopher and the historian. Whatever was the original condition of mankind, it is manifest that the geographical distribution of animals, their abundance or scarceness in particular situations, their peculiar qualities as adapting them for food, raiment, and other domestic purposes, must necessarily have had the most intimate connection with the original condition of our own species, and with all the earliest steps towards civilization. Asia and Africa abound in numerous species of large graminivorous quadrupeds and gallinaceous fowls, which not only furnish human food of the best quality and in the greatest abundance, but are likewise most easily captured: many supply both food and materials for dress. These two continents are the native seat of those animals, which man has been enabled to domesticate and to render the instruments of his further progress in civilization. But in situations less favourable, where animals were rare, and of species not so well adapted for human food and clothing, as, for example, in America, but more especially in Australia, man had to contend with numerous and, in some cases, insurmountable difficulties, which were altogether unknown to the more favoured inhabitants of the Old World. Incessantly occupied in the primary and indispensable labour of procuring a scanty and precarious subsistence, badly protected by insufficient covering from the effects of the weather, and subject at all times to frequent and long-continued fasts, he possessed neither the means of supporting a large family, nor the leisure to improve his condition by the development of his natural faculties. Under such circumstances it was impossible for any considerable progress to be made in the arts of civilized life; the females also of the American and Australian savages are notoriously less prolific than the women of the old continents; and the aboriginal population of those countries, in relation to their extent, is extremely scanty in comparison with that of Europe, Asia, or even Africa. Hence probably, in a great measure, it arises that the inhabitants of the New World were found to be so far behind those of the Old in point of civilization and social improvement; or if this general rule finds an exception in the case of the antient nations of Mexico and Peru, it is a rare and partial instance, and appears to depend upon local and peculiar circumstances.

These reflections will prepare us for forming a just estimate of some of the causes which appear to have operated in preventing the improvement of the Australian savage. When applied to the physical circumstances of his country, and more particularly to the peculiarities of Australian zoology, as exhibited in the following table, they will enable us not only to appreciate some of the reasons of his moral and intellectual inferiority, but likewise to perceive the actual causes which prevented the increase of the species.

ORDERS.	Whole No. of known species.	Whole No. of Australian species.	No. of species peculiar to Australia.	No. of species common to Australia and other Continents.
I. Quadrumana .	186	0	0	0
II. Cheiroptera .	192	2	2	0
III. Carnivora . .	320	10	5	5
IV. Marsupialia .	67	43	43	0
V. Rodentia . .	295	5	5	0
VI. Edentata . .	23	2	2	0
VII. Pachydermata .	30	0	0	0
VIII. Ruminantia .	157	0	0	0
IX. Cetacea . .	76	13	4	9
Total .	1346	75	61	14

The first observation which we have to make upon the mammalogy of Australia, as exhibited in this table, is the very small number of species which inhabit this continent when compared with the actual extent of the country, and the whole number of known species spread over other parts of the world. The disproportion will be rendered still more striking, if we deduct from the total number 75, the 22 species of marine mammals, viz., 13 cetacea and 9 seals (*phoca*), which are included in the table. We thus find that the mammals actually inhabiting the land of Australia amount to no more than 53 different species, forming scarcely the one twenty-fourth part of the whole number of known quadrupeds; a very limited proportion indeed when compared with the relative size of the country. Nor is the small number of distinct species the only peculiarity which is observable in regard to the number of mammals which inhabit this country; the scarcity of *individuals* is quite as remarkable as that of *species*; and the traveller in the interior will frequently journey for weeks together, and pass over many hundred miles of country without meeting with a single quadruped. The cause of this peculiarity is to be sought for in the physical conformation of the animals themselves, rather than in the peculiarities of the country or climate, or the destruction of them by the natives; for, as may be observed from the table, the great majority of Australian mammals belong to the Marsupial order, of which the species are less prolific, and of which the individuals require a much longer time to arrive at maturity, than those of any other group of quadrupeds. It will be readily perceived that these two circumstances, the paucity of distinct species, and the scarcity of individuals in the several species among the mammals of Australia, must have presented at all times a formidable barrier to the increase of population and the advancement of civilized society in this part of the world.

The second peculiarity in the mammalogy of Australia, is that after abstracting, as before, the 22 marine species from

the whole number included in the table, viz. the 13 Cetacea and 9 seals comprised among the Carnivora, it will be found that all the Australian quadrupeds are, without a single exception, peculiar to that continent; or, in other words, that there is not a single Australian species common to that and any other part of the known world. This is a very singular circumstance, and well worth the attention of the curious inquirer, who will find ample scope for conjecture in so curious and unique a phenomenon.

But there is a third observation which we have to make upon the geographical distribution of quadrupeds as indicated in the preceding table, which is not less singular than the last:—with very few exceptions, all the quadrupeds of Australia, at least all the terrestrial species, belong to the Marsupial order. Thus if, as before, we subtract the 22 marine species from the total number of Australian mammals, we shall find that out of the whole remaining number of 53, no fewer than 43, or about four-fifths of the entire amount, belong to this tribe; and the circumstance is rendered still more singular by the consideration that very few animals of this order exist in any other part of the world, the few extra-Australian species being, with the single exception of the common opossum (*Didelphys Virginiana*), which inhabits the southern provinces of the United States, confined to the tropical parts of South America, and to the larger Indian isles, particularly those which lie most contiguous to the northern coast of New Holland. Australia then is the head-quarters of this extraordinary and anomalous race of beings; a race which unites almost all the distinguishing attributes of every other tribe of quadrupeds with its own peculiar characters. The peculiarities of these anomalous quadrupeds will be more properly discussed under the article MARSUPIALS, to which we refer.

The last observation which is suggested by the general view of Australian mammalogy exhibited in the foregoing table, is that the country is entirely destitute of both pachydermatous and ruminating animals—that is, of all those species which are best adapted for human food and for the various purposes of social economy. It will be readily admitted, after considering the observations which we have already made upon the connection between the geographical distribution of animals, especially those which are most applicable to the purposes of human life, and the civilization of mankind, that this circumstance must have at all times exerted a powerful influence over the social condition of the aboriginal inhabitants of Australia; and that it readily explains, not only the thinness of population which exists in this extensive country, but likewise the abject and degraded state of misery in which its savage inhabitants have been generally found. A precarious supply of fish, shell-fish, and roasted fern roots form the chief part of their subsistence: many have been observed greedily devouring the most disgusting reptiles, worms, and caterpillars; land animals, as we have seen, are extremely rare throughout the whole country, and even when met with, difficult to obtain; a kangaroo was occasionally surprised, or run down by dogs as wild and savage as their masters, but the small arboreal phalangers and petaurists could only be obtained by burning or cutting down the trees in which they were discovered. The natives had no contrivance to shoot or ensnare birds, nor could they capture the dolphins and seals which abound on their coasts, like the Esquimaux and Greenlanders. Under these circumstances, it is scarcely conceivable that the native Australian could have ever emerged, by any possible exertions of his own, from the savage condition in which he was found by his European discoverers.

We now proceed to a more particular consideration of Australian mammals. As will be observed from the table, this extensive country is entirely destitute of quadrumanous animals, such as monkeys and lemurs, as well as of pachydermata and ruminants. The cheiroptera, or winged quadrupeds, consist, as at present known, of but two species, one a large species of pteropus, which lives upon fruits, and migrates, according to the season; the other, a small bat, not unlike the species so common in our own country. It was the former of these animals which so greatly frightened the honest sailor during Captain Cook's first voyage, when he returned trembling from a short excursion on shore, and declared that he had met the devil creeping slowly through the grass, but that his terror prevented him from making any other observation than that he had long horns, and was about the size of a nine-gallon keg. This species probably visits the isles of the Indian Archipelago; like all the frugivorous bats, its flesh is white and tender, and is said to resemble chicken.

Of the order *Carnivora*, ten species are inserted in the table as inhabitants of Australia; five peculiar to that continent, and five common to it and other countries. Of these ten, however, nine are marine mammals, belonging to the seal genus (*Phoca*), and comprehending the sea lion, sea bear, and other large species. The only land animal of this order is the dog, a variety of intermediate size, with prick ears and a wolfish appearance, which is found both wild and in a semi-domestic state among the native tribes. It is singular enough that this faithful animal should be the constant companion of man in whatever country he has settled; as far as we are aware, there is not a single instance upon record of the discovery of any nation or tribe who did not possess this universal domestic. Even those countries in which the ox and the hog were unknown, unquestionably the most widely-spread domestic animals after the dog, had been familiar with this latter animal from time immemorial; and indeed, by all appearances, he seems to be the first inhabitant of the forest which was reclaimed and associated with mankind. Once domesticated, it may be readily conceived that the dog would ever after remain the inseparable friend and companion of man; and hence it is that they are found together in all quarters of the world, even where no other domestic animals exist; and so universally true is this observation, that in many places, as in the different groups of islands scattered through the Pacific Ocean, for instance, where no game exists, and where, consequently, he can be no longer turned to the purposes for which nature has fitted him, the dog is still found, though under widely different circumstances, being regularly fatted for the knife, and considered as a dainty reserved only for the tables of the chiefs and great men.

The next order, or *Marsupials*, is that which, as before observed, comprehends the great majority of Australian mammals, and forms the principal character of the zoology of this part of the world. The forty-three species of this tribe marked in the table belong to eight natural genera, agreeing in the general structure and characters which relate to the premature production and subsequent nutrition of the young in a pouch or bag with which nature has provided the female parents, and from which the order derives its name of *Marsupialia*, but differing widely in all the other details of their conformation and economy. The first and perhaps the most remarkable genus of this anomalous tribe of beings, comprehends those singular and now well-known animals which we call kangaroos (*Macropus*), and of which there exists a great variety of different species, though their peculiar distinctions have not been very clearly determined even by zoologists. Among the larger species, the common kangaroo, called the 'forester,' and the 'old man' in New South Wales (*M. labiatus*), the red and woolly kangaroos (*M. rufus* and *M. fuliginosus*), and the species called by zoologists *M. rufo-griseus*, attain a very considerable size, and often weigh as much as a large sheep. They associate together in herds of greater or less extent on the open downs and forests devoid of underwood, feed exclusively upon grass and vegetables, and, though never fat, are held in high estimation by colonial epicures. The tail in particular is said to make very rich and savoury soup; the flesh, from the natural deficiency of fat already mentioned, is cooked with bacon, and considered wholesome and palatable. Of the smaller species, the most remarkable are the rock kangaroo (*M. rupestris*), remarkable for its bushy fox-like tail, and for inhabiting the naked and most precipitous rocks among the mountains, where it makes its way with all the speed and security of a wild goat; the brush kangaroos, called *wallabi* and *padymalla* by the natives, which live among the bushes and thick underwood; and the fasciated kangaroo (*M. elegans*), remarkable for its uniform light blue colour, and the regular and deep black bands which pass transversely over its back and loins. This beautiful species is a native of the western coast, where it was observed by Dampier; all the other species which we have mentioned are found within the colony of New South Wales. It is likewise *probable* that most of them inhabit Van Diemen's Land, at least the same local names are applied to animals inhabiting both these colonies, but they have never been sufficiently compared, nor is the identity of the species established upon any better grounds than that of the names applied to them in these two localities.

The potoroos, or kangaroo-rats (*hypsiprymnus*), are very

similar in most respects to the real kangaroo, from which indeed they only differ in their smaller size, and in some slight modifications of dentition. They seldom exceed the size of a rabbit, live single or in pairs, concealing themselves in crevices or under fallen timber, and moving abroad only at night, when they are hunted by moonlight as food for dogs, their flesh not being considered fit for human food. Only one species has been distinctly described, but there are four or five, and probably a greater number of very distinct species found in different parts of the country. Like the kangaroos, the hind legs only are employed in progression, the fore feet being used as hands to carry food to the mouth and for other similar purposes.

Of the phalangers (*Phalangista*), so called originally by Buffon, from the union of the two interior toes of the hind feet as far as the last phalange or joint, five or six species are known to inhabit Australia, whilst about the same number are spread throughout the long chain of islands which almost connect its northern coast with the peninsula of Malacca. These animals, called ring-tailed opossums by the colonists, from their habit of hanging suspended by the tail, which is strongly prehensile, from the branches of the trees in which they exclusively reside, are distinguished from their congeners of the Indian isles, by having the tail generally bushy, but always covered with hair, except a narrow slip on the under side towards the extremity, which is directly applied to the branches in the act of grasping. The three largest species, *P. vulpina*, *P. lemurina*, and *P. nigra*, are about the size of a domestic cat, and covered with a soft and rich fur, which has been found at Sydney to answer extremely well in the manufacture of hats, but which unfortunately cannot be procured in sufficient quantities to become extensively useful. The long-tailed phalanger (*P. Cookii*) is a rather smaller species, originally discovered by Captain Cook on the south-eastern coast of Van Diemen's Land, and chiefly remarkable for its fine short fur, and long attenuated tail tipped with white. Two still smaller species, the *P. gliriformis* and *P. pygmæa*, are principally distinguished by their minute size, the former being not larger than a small rat, and the latter scarcely equalling the common mouse in magnitude. All these animals inhabit the forests, and feed principally upon the leaves of the various species of gum-trees (*eucalypti*), which occupy so prominent a place in Australian botany, secreting themselves in the hollow trunks of decayed trees during the daytime, and moving abroad only during the night.

Nearly related to the phalangers in many respects, are the petaurists (*Petaurus*), or flying opossums, and flying squirrels, as they are commonly called by the colonists, a genus exclusively Australian, and distinguished by the lax, unprehensile tail, and by the skin of the sides and flanks being distended into a kind of wing, or flying membrane, which acts like a parachute in supporting the body, and enables these animals to make the most astonishing leaps, among the thinly-scattered trees of an Australian forest. Of these there are likewise five or six species; the largest of which (*P. taguanoïdes*) exceeds the size of the domestic cat, whilst the smallest (*P. minimus*), called the flying mouse by the colonists, scarcely equals the dimensions of this latter animal. The petaurists, like the phalangers, are an arboreal and nocturnal genus, feeding principally upon gum-tree leaves, and during the bright moonlight nights enlivening the otherwise silent and lonely forests with their rapid and varied motions.

The wombat (*phascolomys*) is a large animal about the size of a badger, which burrows in the sand-hills of the interior, and lives exclusively upon vegetables. It is of a social disposition, many of them being generally found together, like rabbits in the same warren: like the generality of Australian mammals it is nocturnal, sleeping in its burrow during the daytime, and moving about in search of food, &c. only during the night. It consequently becomes very fat, and has been sometimes known to attain the weight of forty or fifty pounds; its flesh is considered as a delicate and wholesome article of food. Being a slow runner, it is easily captured when found at any distance from its burrow, and is at all times a most valuable resource to the inland or bush tribes of natives, who often resort from great distances to some known warren to enjoy the abundance of a wombat feast. In most of its characters, those only excepted which it partakes in common with the other marsupials, it agrees with the rodentia, and indeed appears to be the natural link which connects these two orders.

The bandicoots (*Perameles*) compose a very remarkable genus which does not admit of a ready comparison with any other group of animals likely to be more familiar to the generality of readers. With a dental system and even an outward form which very much assimilate them to the larger shrews and other insectivorous mammals, they unite the ordinary characters of marsupial animals, and feed exclusively upon roots and other vegetable substances. Their habits are similar to those of the kangaroo-rats, excepting that they do not hop upon the hind legs only, but use all the four extremities in the act of progression, like ordinary quadrupeds; they form burrows, or take refuge during the daytime in natural crevices, or under fallen timber, move about only during the night-time, and are not considered fit for human food. Two species only have been described, the *P. nasuta* and *P. obesula*, both found within the colony of New South Wales.

Two other genera of Australian mammals, the dasyures, (*Dasyurus*), and thylacynes (*Thylacynus*), partake of the habits and appearance of the ordinary carnivorous quadrupeds, and appear to unite this tribe of animals with the marsupials in general. The first of these genera, called *Dasyures* (*i. e.* hairy-tails), to distinguish them from the naked-tailed opossums of America, with which many naturalists had associated them, consists of five or six species, generally of small size, and agreeably marked with numerous white spots on a black, olive, or russet ground. Their habits and mode of life generally resemble those of the martins and pole-cats of Europe; they are nocturnal, and live for the most part upon birds, reptiles, and other small prey. Six or seven species have been described. The ursine dasyure (*D. ursinus*), or native devil, as it is called by the colonists, is perhaps the ugliest and most disgusting looking quadruped in nature. Its legs are very short, its body thick and heavy, and its head disagreeably large and disproportioned to its other dimensions. It inhabits the coast of Van Diemen's Land, sleeping during the daytime in holes among the rocks, and moving abroad during the night in quest of dead seals and other marine productions which compose its food. The *D. macrourus*, *D. viverrinus* and *D. maugei*, are found in Van Diemen's Land as well as on the continent of Australia, and are sometimes called native cats by the colonists, not from any close resemblance which they bear to cats, but from some slight similarity in their habits, as they climb trees readily in pursuit of small birds, and capture their prey more by address than by open force. The *D. penicillatus*, called the sugar squirrel by the colonists, a name which is also sometimes applied to the *petaurus sciureus*, is about the size of a common rat, of a uniform light ash colour, and has the tail terminated by a pencil of long black hair. It resides entirely among the branches of trees, chiefly of the sugar maple species, from which it has acquired its colonial name, and appears to live for the most part upon the larger night insects, and probably upon the eggs and callow young of small birds. The smallest known species is the *D. murinus*, or mouse opossum of the colonists, which is not larger than the little animal whose name has been transferred to it, and which, like the sugar squirrel, resides upon trees, and lives principally if not entirely upon insects. The genus *Thylacynus* contains but a single known species, and that apparently confined to Van Diemen's Land. It is about as large as a moderate-sized dog, and not unlike the canine species in general form and appearance, except that it is longer in the body and has shorter legs. Its colour is a uniform reddish brown marked across the back and loins with sixteen or eighteen transverse black bands, very regularly arranged, and terminating singly upon the sides. Like the generality of marsupial animals, it is nocturnal in its habits, generally keeping concealed in the forests and underwood during the daytime, prowling about at night in search of prey, and often committing depredations among the lambs of the colonists of Van Diemen's Land, as the dasyures do in the poultry-yards of New South Wales. For this reason the thylacyne is keenly hunted by the colonists: notwithstanding its size and strength it is a cowardly animal, and easily worried by a courageous dog.

Of the five species of *Rodentia* inserted in the tabular distribution of Australian mammals, three belong to the rat genus (*Mus*), and the remaining two compose the genus *Hydromys* as defined by the most recent writers on mammalogy. The former are but little different from the common species of rats and mice in other parts of the world;

the latter are merely distinguished by their larger size, long hairy tails, and palmated hind feet, which assimilate them in some measure to the beavers and coypous of America. They are aquatic in their habits, and are found in most of the rivers both of Van Diemen's Land and New South Wales.

The two *Edentata*, inserted in the table, belong equally if not more properly to the marsupial order, partaking, indeed, of the characters of both of those tribes, and forming the connecting link by which they are united. These animals are, without any question, the most singular and anomalous quadrupeds that have ever been discovered. Though they are certainly quadrupeds in the great majority of their characters, yet their organs of mastication more nearly resemble the bills of birds than the corresponding parts of other quadrupeds; and though it is now finally settled that they are true mammals, and nourish their young by a milky secretion like all other animals of the same class, yet it is still a matter of keen dispute among naturalists and physiologists whether they produce their young alive, or lay eggs and hatch them like birds, or rather perhaps like reptiles, for the whole detail of their organization seems to point them out as intermediate between this class and ordinary mammals, rather than between mammals and birds. Of these extraordinary beings there are two genera, *Ornithorhyncus* and *Echidna*. The former, often called the duck billed animal, from the form of its head and face, resides in rivers and ponds, where in fact, like ducks, it lives principally by searching for seeds and insects among the mud at the bottom. For this purpose its bill is furnished with a complicated and delicate tissue of nerves, which enables it to distinguish its food from the small mud and gravel with which it is mixed, and it is indented by small grooves along the sides so as to permit it to strain off the muddy water which it necessarily takes in at the same time. It forms deep burrows along the banks of the rivers, which are provided with two entrances, one above and the other below the level of the stream, so as to afford it a ready means of escape from whatever quarter it is assaulted. Some naturalists reckon two species of *Ornithorhyncus*, the *O. rufus*, and *O. fuscus*; others consider them both as varieties of the same species, to which they give the name of *O. paradoxus*. The genus *Echidna*, though it agrees in its general structure, and in the very anomalous nature of its production with the ornithorhyncus, yet differs widely from that animal in its external appearance, as also in its habits and economy. It is covered with short stout prickles not unlike those of a porcupine, feeds upon the eggs of ants as well as upon these insects themselves, rears its young, resides in deep burrows of its own formation, and hybernates or sleeps during the winter season. Of this genus there are two species, one without any hair, the other with long red hair intermixed with the spines, and called respectively from this circumstance, *E. spinosa* and *E. setosa*.

The coasts of Australia have been long known as the occasional resort of immense shoals of whales, dolphins, and other cetaceous mammals, and the enterprise of the rising colonies established in that quarter of the globe has found a favourable and successful outlet in the fishery for these animals. Many vessels are now annually fitted out from Sydney and Hobart's Town for this valuable branch of commerce, and the success which has hitherto attended the speculation has been a most important accession to the general resources and prosperity of the colonies. The seal fishery has also been attended with considerable success, and the oil and skins of these animals form very important items in the annual colonial exports.

The ornithology of Australia, though far from being so peculiar and anomalous as its mammalogy, contains, nevertheless, many new and singular forms, and wants many of those which are most familiar in other quarters of the globe. Among rapacious birds, eagles, falcons, and various species of hawks abound every where, as well as owls of different kinds. The common peregrine falcon (*falco peregrinus*), and the barn-owl of Europe (*strix flammea*) are said not to present any sensible difference from the same species in England. There are, however, no vultures throughout the whole extent of Australia and its dependencies, a fact probably to be explained by the absence of large graminivorous animals, upon the carcases of which this tribe of birds support themselves in other parts of the world, and which, as we have already seen, are wanting in the animals of Australia. Incessorial or perching birds are extremely numerous every where, but not sufficiently remarkable to require a detailed enumeration. Among the Scansorial order, there exists a vast variety of the parrot tribe, comprising, among others, many beautiful species of paroquets and cockatoos, which surpass those of the Old World in the variety and gaudiness of their plumage. These birds are held in great detestation by the natives, of whose furtive inroads upon the fields of Indian corn and other agricultural produce their loud and incessant screaming gives notice to the owners: they are consequently considered to be in league with the colonists, and the white colour of both the confederates furnishes an unanswerable argument in the logic of these simple savages for the truth of this foolish belief. But the most remarkable fact in the ornithology of Australia is the total absence of gallinaceous birds. This is the tribe which among birds corresponds with the ruminating animals among quadrupeds, and which contains those species which are best adapted for human food and the domestic economy of life. We have already seen that the analogous tribe of mammals is a stranger to this part of the world, and here again we find that it is equally deprived of the common fowl, pheasants, turkeys, guinea-hens, &c. which form no unimportant resource for the natives of other countries, and which have stocked the farm-yards and filled the preserves of civilized nations. Doves and pigeons of various species indeed abound in many parts of New Holland, and the menura (*menura superba*) approximates still more nearly to the ordinary gallinaceous birds; but these are by no means common, and of too inconsiderable a size to have furnished any peculiar resources to the aborigines. The tribe of birds most important in human economy after the gallinaceous or rasores, are the natatores, or water-fowl, and of these New Holland and the neighbouring isles contain a rather better supply. It will be sufficient in this place to mention the cereopsis goose, and the black swan, the 'rara avis' so little dreamt of by the Roman poet, which now breeds spontaneously in England, and is becoming sufficiently common upon the ponds of the curious. It is rather smaller than the common white swan, but with a neck proportionably longer, and a carriage, if possible, still more graceful.

Of the reptiles and fishes of Australia no detailed or regular accounts have yet been published. A species of crocodile or alligator is said to frequent the western coasts of the continent and the shores of New Zealand; and various descriptions of smaller reptiles and snakes, very few of the latter venomous, are found in different parts of the country. Fish are abundant along the coasts; and four or five species of sharks have been described as frequenting the neighbourhood of Botany Bay and Port Jackson, but very little is known upon this department of Australian zoology. Neither has the entomology of the country been sufficiently investigated. There is reason, however, to believe that it contains nothing that would entitle it to a very detailed notice in a sketch like the present.

AUSTRIA, EMPIRE OF. Noricum, in remoter ages a wild tract of country, which has the appearance of having once been covered with water, extended from the Julian and Carnic, or Carinthian Alps, to the right bank of the Danube, and from Mount Cetius to the Rhætian borders. From this inconsiderable region, for its area scarcely exceeded that of the present archduchy of Austria itself, sprung the 'Oesterreich,' 'Eastern territory of the Empire,' or 'Eastern Mark of the Empire of the Franks,' as it was designated by Charlemagne, when towards the close of the eighth century he united the territory composing the archduchy of our own times with the German empire. This once wild and inhospitable region has given birth to a race of rulers who have gradually united kingdoms and principalities under their dominion, which now comprehends nearly one-twelfth of the entire surface of Europe. The same land which gave birth to the marauder Odoacer, by whose hand the last of the Cæsars fell, has become the centre of an empire, which, for diversity of component parts, strongly resembles the once gigantic empire of imperial Rome. Those parts, indeed, are not more dissimilar in natural character than are the people themselves in languages, usages, and prejudices; so far from being united into one nation, they are held together by a solitary link—that of subordination to a common sovereign.

Though the dominions of the house of Austria comprehend, as we have observed, nearly one-twelfth of the surface of Europe, they constitute only the third in point of

extent, among its monarchies; for the European territory of Russia is full eight times, and the Swedish one-twelfth, more extensive. The 'Campania of Germany,' as the Austrian empire has been not inaptly designated, makes a compact dominion, to which its southernmost extremity, the narrow tract of Dalmatia, forms the only exception. It lies between 42° and 52° N. lat., and 9° and 27° E. long., occupying an area of 255,226 square geographical miles, the circuit of which has been estimated at 4400 miles. It thus spreads over nine degrees of latitude and eighteen of longitude: and under the new conformation given to it by the treaty of Paris, in 1814, and the adjustment made by the Congress of Vienna in the following year, extends from the castle of St. Stephen, thirty miles below Cattaro, in Dalmatia, and the Punto di Gero, south of the mouths of the Po, in Upper Italy, to the sources of the Spree, close upon Prussian Lusatia, and almost to the walls of Sandomir, in Polish Russia; and from its extreme western point, the hamlet of Engera, at the southern end of the Lago Maggiore in Lombardy, to Khoezim in Bessarabia, which lies close upon its most eastern border. The territories of Saxony and Prussian Silesia bound the Austrian dominions on the *north-west* and *north*, the former for 250 and the latter for nearly 320 miles; on the *north-east*, the frontier runs for about 50 miles next to the territory of the republic of Cracow; and, in the same direction, conjointly with their *eastern frontier*, the Russian provinces of Podolia, Volhynia, and Bessarabia border them for a distance of more than 530 miles; and it is in this quarter that the Austrian dominions are the most vulnerable, as the frontier is entirely open in the north-east for 160 or 190 miles. The remainder of the *eastern* and the larger portion of the southern confines adjoin the Turkish provinces of Moldavia, Wallachia, Servia, Bosnia, and Croatia, along a line of nearly 1100 miles. The Adriatic washes the Austrian shore for 650 miles; the land boundary on the south next skirts the dominions of the Roman See about 60 miles, of Modena and Parma 120, and of the Sardinian States about 100. The *western* limits of the Austrian dominions, in their course from the south to the north, border for an extent of 330 miles on the Swiss cantons of Tessino, the Valais, and St. Gallen; of 14 on the principality of Liechtenstein; of nearly the same distance on Lake Constance; and of 550 and upwards on the kingdom of Bavaria. The extreme length of the Austrian Empire has been estimated at 870, and its greatest breadth at 690 miles.

The territorial surface of the Austrian dominions has been variously stated by the best writers on the subject: Ridler, for instance, estimates it at 252,525 square geographical miles; Lichtenstern at 253,155; Rohrer at 255,226; Hassel at 257,208; and Blumenbach, whose authority appears to have been followed by Hörschelmann. in his new edition of Professor Stein's Manual, at 260,195. In the statement, however, which we are about to give, we have preferred to abide by the dimensions assigned by Rohrer, whose *Statistics of the Austrian Empire* are generally reputed to have been founded on semi official documents. For the same reason, we have not hesitated to adopt the return which he has made of its population for the year 1831 as our index to its present amount. The number of cities, &c. is from a Return in the 'Vienna Archives' of 1833, drawn up, we understand, by Czörnig.

Surface, Population, &c., of the Empire of Austria.

	Surface.	Population, 1831.	Cities and Towns.	Market Places and Villages
Archduchy of Austria and circle of Salzburg	14,881	2,118,915	52	11,425
Duchy of Styria	8,388	859,841	20	3,643
Earldom of the Tyrol and territory of Voralberg	10,846	786,543	22	1,731
Kingdom of Bohemia, including the districts of Eger and Asch	20,013	3,897,076	278	11,926
Margraviate of Moravia and Austrian-Silesia	10,112	2,066,218	118	3,733
Kingdom of Illyria, comprising Carinthia, Carniola, Triest, and circle of Carlstädt	10,915	1,145,445	62	6,865
Kingdom of Galicia and Lodomeria, including the Duchy of Auschwitz and Zator and the Buckowine	32,508	4,548,534	95	26,145
Kingdom of Hungary, with Slavonia, Croatia, and the military frontier	100,636	11,536,431	62	12,879
Principality of Transsylvania with the military frontier	23,298	2,034,385	25	3,356
Kingdom of Dalmatia	5,748	309,412	9	1,002
Kingdom of Lombardy and Venice	17,892	4,332,581	56	11,434
	255,226	33,630,381	799	73,639

The preceding statement gives a view of the customary subdivision of the territorial surface of the Austrian dominions; but for the purposes of internal administration, they have been distributed in a somewhat different order, though the number of subdivisions or provinces remains the same. These are—

	Geog sq. miles
I. The *Archduchy of Austria*, composed of *a.* The province of A. below the Ens, which includes the city of Vienna and four circles, Upper and Lower Wienerwald, and the Upper and Lower Mannhartsberg. *b.* The province of A. above the Ens, which consists of five circles, those of the Muehl, Hausruck, Inn, Traun, and Salzach.	14,881
II. The *Duchy of Styria*, containing five circles, viz. Grätz, Bruck, Judenburg, Marburg, and Cilly.	8,388
III. The *Kingdom of Illyria*, divided into two Governments, viz. *a.* Laybach, with five circles, Klagenfurt, Villach, Laybach, Neustadt, and Altenburg . . . 6,861 *b.* Triest, with three circles, Triest, Istria, and Gorz 4,054	10,915
IV. The *Duchy and Principality of Tyrol*, consisting of seven circles, viz Upper and Lower Innthals, Pusterthal, Etsch, Trient, Roveredo, and Voralberg.	10,845
V. The *Kingdom of Bohemia*, divided into the sixteen circles of Rakonitz, Beraun, Prachim, Tabor, Kaurzim, Czaslau, Chrudim, Bitzow, Saatz, Ellbogen, Leitmeritz, Bunzlau, Koniggratz, Budweis, Pilsen, and Klattau, besides the municipal districts of Prague.	20,013
VI. The *Margraviate of Moravia and Duchy of Silesia*, containing eight circles, viz. Olmutz, Brunn, Znaym, Iglau, Prerau, Hradisch, Troppau, and Teschen.	10,112
VII. The *Kingdom of Galicia*, containing nineteen circles, viz Lemberg, Zloczoff, Wadowiz, Bochnia, Sandetz, Jaslo, Tarnoff, Rzeszow, Sanock, Sambor, Przemysl, Czortkoff, Zolkieff, Tarnapol, Brzezany, Stry, Stanislawoff, Kolomea, and Czernowitz	32,508
VIII. The *Kingdom of Hungary*, consisting of four provinces, viz the country on this side of the Danube, with thirteen circles (or Gespannschaften); the country on the other side of the Danube with eleven circles, the country on this side of the Theiss, with ten circles, and the country on the other side of the Theiss, with twelve circles . . 80,580; Slavonia, with three circles . . . 3,616; Croatia, ditto ditto . . . 3,620	87,816
IX. The *Principality of Transsylvania*, containing 1. The Land of the Magyars, with 13 districts . 11,592; 2. Ditto Szekles, 5 ditto . 4,623; 3. Ditto Saxons, 11 ditto . 4,093	23,?88
X. The *Military Frontier Districts*, six in number, viz the Carlstadt, Banat, Warasdine, Slavonian, German, and Transylvanian.	12,820
XI. The *Kingdom of Dalmatia*, containing four circles, viz. Zara, Spalatro Ragusa, and Cattaro	5,718
XII. The *Kingdom of Lombardy and Venice*, containing 1 The Province of Milan, with nine circles, viz. Milan, Brescia, Cremona, Mantua Bergamo, Como, Pavia Lodi and Crema, and Sondrio . . 8,460; 2 The Province of Venice, with eight circles, viz. Venice, Verona, Polesino, Padua, Vicenza, Belluno, Treviso, and Friuli 9,432	17,892
	255,226

Soil, climate, and productions.—The Austrian dominions contain, in almost every part, lofty mountains, some forming the natural line of demarcation into provinces, as the Sudetsch branch of the Hercynians, and the Carpathian chains in the north and east; and others, like the Alps and their branches, in the south and west, penetrating into the heart of the several countries which form part of the empire in this direction. The plains do not occupy more than about a fifth part of the whole surface; the few extensive levels which exist are found next to the northern declivities of the Carpathians, in Galicia, and in the south-eastern parts of Hungary, between the Matra and the Transsylvanian branch of the Carpathians; they prevail within the Slavonian borders, and form the distinguishing feature of that portion of the Austrian possessions in the north of Italy which lies between the Alps and the Apennines.

The soil is of endless variety, but in general favoured by a mild and genial climate, and distinguished by remarkable productiveness.

Slavonia and the south-eastern and central parts of Hungary (and we begin with these as forming the most extensive subdivision of this vast monarchy) present a wide expanse of low land, abounding in clay and marl, and of exuberant fertility, yet lying in immediate contact with arid, sandy steppes, and extensive morasses, which occupy more than 6400 square miles of the Hungarian territory alone. Large tracts of these steppes however have been, and more are in process of being, reclaimed and brought under cultivation. This very territory, however, in its northern and western districts, is characterized by mountain and forest it is encompassed in the north by the Carpathians, which extend in a broad semicircle from Pressburg, one of the most westerly points of Hungary, to its eastern confines, and their offsets also strike deep into the interior of the country; in the west, various branches and groups of the Cetian, Styrian, and Julian Alps cover a large portion of

its surface. The lowland of which we have spoken occupies about 25,000 square miles; the larger portion, an area of about 21,000 miles, lies between the Danube and the Transsylvanian mountains, and is watered by that river and the Theiss for a length of upwards of 300 miles, and interspersed with extensive steppes and morasses. The smaller plain in the west, stretching eastward from the Neusiedler Lake, with a breadth of nearly 120 miles beyond Gran, and along each bank of the Danube, comprises an area of upwards of 4000 square miles, which is remarkable for its fertility. The general character of the Hungarian soil, exclusive of the more northerly districts and such as are partially a waste of barren sand and swamp, or whose soil is saturated, as in many eastern districts, with saltpetre, is that of great productiveness. The climate is of a mixed character; at the close of June, when the harvest begins in the plains, the corn is scarcely in ear in the higher regions. The temperature is, on the whole, higher than that of Germany, and though the unwholesome vapours from the marshy borders of the Danube and Theiss, as well as inland swamps, may be prejudicial to health in a few quarters, it were unjust to say, as it has been said, of Hungary, that it is 'the burial place of Germany.' It abounds in rivers, streams, and lakes, and possesses some considerable canals; is richer than most European countries in metals and minerals, tin and platina being the only metals not found in it.

South of Hungary lie the former principalities of Croatia and Slavonia, the larger parts of which are now incorporated with it. Croatia comprises, in its [illegible] western quarter, the maritime territory from Fiume to C[illegible], [illegible] intersected by a continuation of the Carinthian chain, to which is owing its alternation of plain and hill [illegible] and its variable though generally salubrious climate. Where the soil lies low, particularly in the vicinity of the Save and Drave, it is productive; in more elevated situations it is a cold clay, and near the coast marsh and sand [illegible]. Nine tenths of the surface produce grain, wine, fruit, and tobacco, or furnish metal and a supply of timber.

Slavonia, the northern districts [illegible] separated from Hungary by the Drave and Danube, whilst the southern are watered by the Save, is traversed in its whole length from west to east by mountains [illegible] the principal chain, the 'Fruschka Gora' or Mons Almus, [illegible] in Croatia, and subsides not far beyond [illegible]. The rest of the province has an undulating [illegible] which gives some variety to its spacious and fruitful plains. With the exception of the swamps that run along the [illegible] the Save, Slavonia is a land of unusual fertility; its chief productions are wine, silk, honey, spirits, fruit, [illegible] and coal.

Nearly the whole of the western frontier of the [illegible] principality of Transsylvania borders on the Hungarian territory. As the Carpathian range covers its whole extent, its surface is at a much greater elevation than the neighbouring territories, and slopes gradually from the north-easterly border of the province to the south-westerly point where the Marosch discharges its fertilizing stream into Hungary. Transsylvania is without a single plain, properly so called, but abounds in valleys, some of which are of considerable extent, finely wooded, and inferior to none in Europe for beauty of scenery and fertility. It is full of lakes and natural pieces of water. In the more elevated regions the climate is raw and cold; but, below them, it is temperate and pure; no part of the province can be termed unhealthy. The highlands being generally covered with forests, timber is the chief Transsylvanian produce; gold, silver, iron and rock salt, and small quantities of copper, lead, and precious stones are found in this province. In other respects Transsylvania is characterized by nearly the same class of productions as Hungary.

North of the Carpathians, which separate Hungary from Galicia, lies the great Galician plain, gradually sloping from the mountains till it opens upon the extensive flat, of which a hill or river's bank seldom relieves the monotony, and the distant North Sea and the Baltic form the northern boundaries. Galicia, though it contains many sandy tracts, is, next to Hungary, a principal granary of the Austrian states, and supplies large quantities of salt, some precious metals, and many other mineral and vegetable productions. Its soil is of very varied character; in the west, but more particularly in the vicinity of the San, it is marshy and sandy, and far inferior in all respects to the eastern parts of the province, which are watered by the Dniester and covered with a moist cold loam, and beds of chalk. These beds are intermixed with layers of granite, gneiss, and quartz, and here and there rise from the surface into low hills; and the Galician soil is no where so productive as in the districts of Zloczoff and Stanislawoff. In climate Galicia is of northern temperature, for there are few parts in which the cold influence of the Carpathian atmosphere is not sensibly felt; hence the grape and most other fruits do not generally ripen.

The south-western limits of Galicia adjoin the high mountain regions of Austrian Silesia, a country as poor in grain as it is abundant in pastures and timber, and known, in common with Moravia and Bohemia, for its growth of flax and its linen manufactures.

South-west of Silesia lies Moravia, which, compared with the adjacent regions of Hungary or Bohemia, has a far milder climate. It is mountainous in its eastern, northern, and western districts, but low and open towards the centre and south, the rich expanse of which has been styled 'a land of maize and wine.' In this direction it presents a line of rich and finely-cultivated plains; but the remainder of the province, occupying upwards of one-half of its area, is intersected by arms of the Sudetsch and Carpathian ranges, between which, however, lie many fertile valleys. The greater portion of the province is from 180 to 900 feet above the level of the sea.

West of Moravia lies the great Caldron Plain of Bohemia, bounded on every side by the giant [illegible] chain of the [illegible] Sudetic mountains, the Riesengebirge, the Moravian, Bohmerwald and Ore (Erzgebirge) mountains, which cast their offsets into the interior of the country. The heart of the kingdom presents a surface of gentle undulations, studded in many parts with lofty [illegible] elevations, and slopes from almost every point towards the central and lowest part of Bohemia, the 'Valley of the Elbe.' This country lies so high, that it has [illegible] river which does not rise within its own boundary [illegible]. The plain country, which occupies its centre, is equidistant from the Baltic and Adriatic, and enjoys a mild, regular, and healthy temperature; but the climate is raw and variable over the larger part of its surface, which is occupied by the highlands and mountains. Bohemia is rich in animal, vegetable, and mineral products, and the arable and otherwise productive lands, although nearly two-thirds of the surface are occupied by woods and forests, extend over four-sevenths of the Bohemian territory.

The Archduchy of Austria consists of two provinces. The 'lower province' is intersected on the confines of Styria by a branch of the Noric Alps, and its centre by one of their smaller arms, the Cetium mountains, whilst the [illegible] valley of the Danube traverses this and the adjoining province for above 160 miles. The 'upper province,' which forms the western part of the archduchy, is a mountainous region, the southern portion of which abounds in lofty peaks, lakes, and valleys, which distinguish the Noric Alps; the northern contains part of the less elevated summits of the Bohemian [illegible] chain, or 'Bohmer wald Gebirge.' The 'lower province' is a corn country, but produces much fruit and wine, iron, silver, and coals, and may, in a manufacturing point of view, be considered as the Lancashire of Austria. The upper province, which includes the Salzburg territory and contains, in proportion to its extent, more rivers and lakes than any other district in the empire, has a soil which, in spite of the skill and unwearied industry of its inhabitants, does not yield grain enough for their consumption, though it raises large quantities of fruit, hay, oats, and salt, and produces much iron, and some inconsiderable supplies of gold, silver, lead, copper, and other metals.

Styria, which the Archduchy bounds on the north, is completely covered, both in its northern and western districts, by those majestic arms of the Julian Alps known by the name of the 'Styrian Alps.' The southern and eastern districts contain fewer lofty heights, and are intersected by gentle hills, the spaces between which are often occupied by broad and well-cultivated valleys. The whole of the province, which seems naturally to divide itself into Upper and Lower Styria, is amply provided with rivers and streams, whence its rich pastures, and abundant crops of every kind of grain, of clover, vegetables, fruit, and wines, and its fine races of horses and cattle. Besides this, no country of the

same extent in Europe is more valuable for its stores of salt, iron, steel, and tin, and its works and manufactories.

West of this duchy lies one of the most antient possessions of the crown of Austria, the earldom of the Tyrol, which, in conjunction with Upper Austria, has been denominated the 'German Switzerland.' The Rhætian, or Tyrolese Alps, the most elevated mountains in the Austrian dominions, which run through this province from the Grison frontier to the Illyrian, and meet the Noric on that of Upper Austria, are scarcely less lofty than the Alps of Switzerland. The Ferner mountains traverse the Tyrol, at an inferior elevation, from the sources of the Etsch, or Adige, in a direct north-easterly line to the valley of the Ziller; and the Mittelberge, or mountains of middle elevation, on whose more fertile surface the Alps look down, divide the Tyrol into smiling plain and valley, whence the Tyrolese lowlands have derived their appropriate name of 'Thaler, or vales, of which about twenty-nine are dotted with town or village, and fertilized by the waters of the Inn, Etsch, Brenta, and a number of other streams. The air is generally pure and keen, though, in the south, the effect of the sirocco is partially felt. The chief products are horses and cattle, grain, wine, fruit, potatoes, timber, salt, iron, copper, silver, lead, and a little gold.

Illyria, which touches part of the eastern borders of the Tyrol, and is composed of the duchies of Carinthia and Carniola, the territory of Triest, Austrian Frioul, Istria, a portion of Croatia, and the Quarnero Islands at the head of the Adriatic, is principally of a mountainous character. That portion which lies north of the Drave is traversed by the Noric Alps, which extend to the banks of that river, south of it, and next to the Italian frontier, the Carinthian range separates the territory of the Save and Isonzo from that of the Drave; and, in continuance of this range, the Julian, or Carniolan Alps, run in a south easterly course towards Dalmatia, until it is bounded by the Adriatic. These regions are full of lakes (amongst others, the celebrated Zirknitzer in Carinthia, which wholly loses its waters at certain seasons), of natural caves, and wild scenery. They are separated from the 'Kusten-land, or maritime frontier districts, by what is termed the 'Karst (from Carso, a desert), extending, from Triest, deep into the circle of Adelsberg, and covered with numberless limestone hills, generally unfavourable to vegetation, and exposed to the prevailing north-easterly wind. The Kusten land itself, liable to incessant tempests and burning heats, and by nature sterile and uncultivable, would be a desolate waste but for the industry of its inhabitants, who extort their precarious crops from the most perverse of soils. No country can be more varied in climate than Illyria: in the north, where so many of its mountains are capped with perpetual snows, a pure and bracing atmosphere conduces to health and exertion; in the south and east, a hot sky, and, in many districts, noxious vapours, render the country scarcely habitable except by the natives. No less varied are its products. Horses and cattle, flax, hemp, maize, and buckwheat, the pure and semi-metals, coals, and other minerals, are raised; and the vine, the olive, and the mulberry tree grow luxuriantly.

The most southern province of the Austrian dominions is Dalmatia, a narrow strip of country far more favoured by nature than the neighbouring territory of Illyria, but comparatively unproductive, owing to the ignorance and indolence of the people. It has a long line of coast, washed by the Adriatic, and studded with numerous woods, harbours, inlets, and islands: its interior and its eastern confines are traversed by branches of the Dinaric Alps, here termed the Wellebit, or Morlachian mountains, and a few offsets of the Julian, many of which are of considerable elevation. Besides these, there are the Montenegrine mountains, encircling the spacious gulf of Cattaro. Both the high and low lands of this province are in general of limestone formation, uncultivated, and abounding in forests, where the Kerka, the more southerly Cettina, and other inconsiderable streams water the soil, it might be rendered productive. In climate it is Italian, seldom visited by snow, but exposed to the cold north wind, and to the insalubrious exhalations from the marshes along its shores. The numerous islands which line the coast, many of which are near enough to it to form narrow straits, or, as they are termed, canals, possess a naked rocky soil, are only partially inhabited, and of little use except for fishing, and feeding sheep and goats in summer. The chief products of Dalmatia consist in marble of excellent quality, wine, oil, figs, almonds, wax, horned cattle, sheep, salt, and more particularly fish.

At the north-western extremity of the Adriatic, bounded by the lofty chain of the Alps on the north, and by the Po along the whole line of its southern frontier, lies the spacious plain which forms the larger portion of the modern kingdom of Lombardy and Venice, one of the richest appendages of the Austrian crown. The Rhætian Alps, which stretch eastward from the Lago di Como, form a lofty barrier between Switzerland, part of Tyrol, and Lombardy; they extend southward to Monte Pellegrino, where the Carinthian Alps begin, and in their course encircle and traverse the whole northern districts of the Venetian territory. This elevated surface, which embraces one-third at least of the Lombardo-Venetian soil, contains the fertile valleys of the Adda, Piave, Tagliamento, and other less considerable streams. Nearly in the middle of the magnificent plain which lies between the feet of the Alps and the left bank of the Po rises the picturesque chain of the Euganean hills, which have no connexion with any part of the Alps themselves, nor does any summit attain an elevation of eighteen hundred feet. The plain itself descends gently to the margin of the Po, which is its southern limit as respects Lombardy and Venice; whilst its eastern slope to the Adriatic coast is so gradual as to form almost a complete level. The land is fertilized by artificial irrigation: in the west, in particular, the soil consists of a thick coat of loam or mould; but at its eastern extremity, especially in the vicinity of the mouth of the Po, the surface changes to extensive swamps and marshes. The maritime districts on the Adriatic are flat and sandy, and abound in lakes of stagnant water, which have been gradually created by the numerous streams which seek an outlet in this direction. The climate is in general mild and temperate, though, in severe winters, the thermometer has descended 20 of Fahrenheit below the freezing point; snow has been known to be upon the ground for weeks; and even the lagunes of Venice at times have been coated with ice. In Lombardy, however, the distinguishing feature of the winter season is the continued recurrence of heavy rains, which last two months at a time, or more. The air of the high lands is keen and bracing. On the whole, except the parts in which the marsh or 'lagune' predominates, the climate of Lombardy and Venice is unquestionably salubrious. The soil, in addition to most of the usual sorts of grain, produces maize, rice, and millet; pease, beans, potatoes, hemp, and flax, vegetables and fruits of all kinds, which are become almost necessaries of life in this climate; and, in some parts, saffron. Rich as Lombardy in particular is in pasture land, there is scarcely a possession of the Austrian crown where the rearing of cattle is in general more neglected: we must, however, exclude from this remark the districts which produce the celebrated Parmesan and Strachina cheeses. There is no branch of industry more carefully or profitably cultivated than the raising and manufacture of silk; the Alpine districts, too, yield considerable quantities of iron, copper, coal, marble, and other minerals.

Mountains.—The larger portion of the Austrian dominions, especially the south-western and eastern provinces, is occupied by mountains, which send out numerous lofty and wide-spreading branches. Their position, to a certain extent, breaks up the Austrian territory into separate parts, and throws great difficulties in the way of internal communication; at the same time, these numerous mountain-ranges give that manifold character to the productions of the different districts which connects them by ties of mutual dependence and advantage.

We shall commence our view with the chains which are most remarkable for their extent and elevation.

In the south-west, the *Rhætian* or *Tyrolese Alps*, the loftiest range in the Austrian dominions. This chain, after forming the northern boundary of Lombardy, enters the Tyrol from the Grisons, beginning on the Austrian side with the highest mountain in the whole empire, namely, the Ortelos, or Oertlers Spitze, at an elevation of 2058 Vienna klafters, or 12,811 English feet, near the source of the Adda, and extends in a north-easterly direction, covering the Tyrol with its enormous masses, until it terminates at the Three Lords' Peak (Dreiherrn-spitze), near the borders of Carinthia, and at no great distance from the source of the Salzach, in the province of Upper Austria. Among the branches of the Rhætian Alps is one which bends easterly towards the source of the Muhr, in the circle of Salzburg,

and then running northward between the Traun and Ens, divides into several arms of considerable elevation, which subside in the valley of the Danube. Another principal branch stretches in a southerly direction to the Monte Pellegrino, close upon the frontier of the Tyrolese and Venetian territories, and sends forth its arms under the name of the Lesinian mountains (which lie between the Lago di Garda and the Brenta) and the Euganeian and Berinian hills. In connexion with the Rhætian chain are—2nd, the *Noric Alps*, which commence at the Three Lords' Peak, traverse the whole of Carinthia which lies on the left bank of the Dravo, then turn eastward through Styria, spread into Lower and Upper Austria, and gradually subside into the plains of Oedenburg in Hungary. A limestone range, to which the Sommering, between Lower Austria and Styria, belongs, accompanies this chain, whose extreme northern arms, the Kahlen and Leitha heights, commonly called the Joseph and Leopold's Berge, look down upon the plain in which Vienna is situated. Connected also with the Rhætian, are—3rd, the *Carnic* or *Carinthian Alps*, which commence at the Monte Pellegrino, in the southernmost Tyrol, run south-eastward through the Illyrian provinces of Carinthia and Carniola, and gradually subside in the Küstenland, or government of Triest, on the Adriatic. This chain abounds in iron, lead, copper, and quicksilver; and many minor branches descend into the eastern parts of the Venetian territory, whilst one of them stretches, in a gradually declining elevation, from the Terglou in Western Illyria, eastwards beyond Carlowitz, where it terminates opposite the confluence of the Danube and Theiss. With the Terglou begins the long chain of 4th, the *Julian* or *Carniolan Alps*, which run in a south-easterly direction between the right bank of the Save and the Isonzo, until they throw out two arms above the town of Idria in the Illyrian province of Laybach; the western encircling and traversing the peninsula of Istria to its western shore, and the eastern descending along the left bank of the Calpa in Illyria: the main chain stretches on in a south-easterly line, until it has encircled the gulf of Quarnero on the Adriatic, and formed a junction, at the high limestone rock termed the Klek near Zengh, with—5th, the *Dinaric Alps*, which, from this point, traverse that part of Austrian Croatia between the Kulpa and Unna, and right bank of the Save, and then enter Turkish Croatia; whilst a branch turns westward, spreads out in short ranges to the very borders of the Adriatic, and converts a considerable portion of the narrow elongated surface of Dalmatia into a mountain-region, of which the Monte Dinara (5669 feet in height), whence the parent chain has derived its name, is the most elevated summit. The whole of the Alpine chains which spread through the Archduchy of Austria, and, south of it, into Styria, Illyria, Croatia, and Dalmatia, as compared with the stupendous elevation of the western chain of the Alps, scarcely attain one-half of their elevation.

The eastern and north-eastern territory of Austria is characterized by its own independent mountain system. The *Carpathians*, which commence near Pressburg on the Danube, near the north-western border of Hungary, are connected by their northward slope with the Sudetsch branch of the Hercynian chain; and when they reach the district where the boundaries of Austrian-Silesia, Moravia, and Hungary meet, attain a great elevation. From this point the principal mass sweeps in an arch to the east, and then follows a southerly course until it reaches the south-eastern extremity of Transsylvania at Mount Mosa Mika, from which point it turns towards the west, and then deviating a little to the south, terminates a course of between 610 and 700 miles on the left bank of the Danube near Old Orsova, close upon the frontier of Wallachia. In this course, the Carpathians form a boundary-line, separating Hungary from Moravia, Austrian-Silesia, Galicia, and the Buckowine in the north; Transsylvania from Moldavia and Wallachia in the east and south; and the military frontier of south-eastern Hungary from the western confines of Wallachia, and the northern of Servia, on the right bank of the Danube.

We have already noticed the extensive portions of the surface of Hungary, Galicia, the Buckowine, and Transsylvania, which the Carpathians cover. The principal groups into which they are usually subdivided, are:—1. The *Transsylvanian Alps*, consisting of a number of parallel ranges stretching first north-eastward through the Austrian Bannat and then across the province, whence they have their name, from Uipalanka, below Weisskirchen (about 70 miles east of Semlin), and subsiding gently at Mount Pietrozza, a little to the north of the sources of the Theiss in the Hungarian circle of Marmaros. No summits in this group exceed 4000 feet in elevation until they have reached the territory of Moldavia. They slope gently, on the west, into the plains of Hungary around Temeswar and Wardein, and occupy a surface of which the greatest length is about 350 miles, with a breadth varying from 25 to 95 miles. 2. The *Waldgebirge* or Forest Mountains, the main chain of which takes a north-westerly course from the sources of the Theiss in Hungary and Pruth in south-eastern Galicia to the banks of the Hernad and Popred in Upper Hungary. They form a series of low flat masses of sandstone and flinty rock, extending in length from 140 to 160 miles, and in breadth about 50 or 60 miles, on the northern or Galician side of which the Dniester springs. On this north side they descend, covered with forest and swamp, into the Galician plain, their base being terminated by those enormous banks of rock-salt, between 700 and 800 feet deep, which appear to spread eastward almost to the verge of the Ural chain in Southern Russia. Their southern slopes fall into the plain of the Theiss in Hungary, and, where the line of forest ceases, they are well cultivated, and highly favourable to the growth of the vine. 3. The *Central Carpathians* or Tatra Mountains: these not only constitute the loftiest mass of the whole Carpathian system, but are the only mountains of eastern Europe, north of the Alps, which approach the latter in character. They extend for about 80 miles along the northern confines of Hungary, between the Upper Popred and Dunajec, which lie at their south-eastern end, between the Arva and the Upper Waag. The average elevation of this stupendous mass of granite is between 6000 and 6500 feet; but that of the highest summit, the Peak of the Lomnitz, is 8133 feet. They are characterized by Alpine glaciers, snow, lakes, and deep chasms, chiefly however in the more northerly regions. In the north they stretch out their arms towards the banks of the Raba and Bialka in western Galicia; and in the south, as far into the heart of Hungary as Waitzen on the Danube, and Erlau on the stream of that name, which is tributary to the Theiss. In both directions they are bordered by a range 2000 feet high, and these again are bounded by a margin of low hills 4. The *Hungarian Erzgebirge*, or Mountains of Ore, which rise to the south of the Tatra, consist of numerous groups, divided by the valleys of the Neutra, Gran, and other streams: they slope down into the plains of Hungary, and at their western declivity, facing Gran and Waitzen, approach the Danube. Their breadth varies from 50 to 60 miles. One of the branches of this chain, the Matra, which forms the central group next the plains, is celebrated for the excellence of its vineyards. 5. The *Beskides*, the highest point of which is the Babia Gura, at an elevation of 5100 feet, abut eastward on the Waldgebirge, and, encompassing the northern range of the Central Carpathians, spread along the frontiers between Moravia, Austrian-Silesia, Galicia, and Hungary. Towards the north they extend into Galicia, and descend into the elevated plains of Tarnowitz and Cracow, in the region of the Upper Vistula, whilst their southern range subsides on the plains of Hungary. Their western extremity, from which the Beczva springs, stands in immediate contact with—6. the *Lesser Carpathians*, or Jaworina Mountains, which commence between Hainburg and Pressburg, on the left bank of the Danube, and form the most westerly group of the parent chain. Thence they take a north-easterly course, crossing the district between the March and Waag, and next form a line of demarcation between Moravia and Hungary. Their greatest elevation does not exceed 2000 feet, from which they decline with thickly-wooded slopes as they approach the March and Waag on the western and eastern sides.

The sides of the Great Carpathian chain are generally covered with forests to a height of 3600 and even 4200 feet, above which there is a succession of naked colossal masses of rock, whose surface is unrelieved by any sign of vegetation beyond a scanty sprinkling of rock-moss. The highest points are every where composed of granite, and the less elevated, either of primitive limestone or syenite porphyry and sandstone; the former of these is frequently covered by trap. Even at their most elevated points the Carpathians are not crowned with perpetual snow, nor is the ice or snow which accumulates in their hollows

capable of resisting the effect of mid summer heats vegetation, which is luxuriant, especially in the neighbourhood of the central range, becomes languid as it approaches the higher regions the woods on the southern side of the chain next Hungary are alternately composed of firs, pines, and beeches, but, on their northern side, next Galicia, they consist principally of firs, frequently intermixed with pines, and at times with beeches, but not a single oak exists on the Carpathian soil Neither the vine nor walnut succeed in the central range

The declivities of the several Carpathian ranges, but more particularly those which spread into Hungary and Transylvania, contain the sources of several rivers On the Hungarian and Transylvanian sides, the Theiss, Szamos, Maros, and Aluta on the northern and eastern sides of the Carpathians, the Sereth, Moldava, Pruth Hernath, Gran, and Neutra, and in the central and Beskide ranges, the Waag, Vistula Dunajec and Dniester

The last mountain ranges which we have to notice are the Sudetsch and other branches of the Hercynian chain Where the westerly termination of the Beskide group descends with its broad masses into the low country between the Vistula and Oder an extensive girdle of mountains takes its rise Elevating themselves at this point from the narrow plain which lies between the Upper Oder and Beczva at their eastern extremity and from the plain of the Hanna or Upper March, the lofty chain of the Sudetes follows a north westerly direction for more than 200 miles through the upper part of Moravia Austrian Silesia, and along the northern districts of Bohemia until it reaches the Elbe the right bank of which on the side of Saxony forms its north westerly limit The Sudetes are the boundary line between those portions of the Austrian territory and the Saxon and Prussian dominions which lie to the east of the point at which the Elbe has forced a passage through the Ore mountain group of the Hercynian chain They are remarkable rather for their length than breadth in no part are they completely broken by the interposition of plains, and they occasionally rise from their general elevation of 1000 to a height of 4000 feet The natural character of the Sudetes has led to their subdivision into four distinct ranges of which the first in order, commencing with their vicinity to the Carpathians, is

The *Silesian Mountain* range, whose surface mostly covered with the elevated forests on the confines of the two provinces, contains the sources of the Oder and March Its mass consists of primitive clay slate which at times diverges into mica slate The central summits of the range have in general 2000 feet elevation but its loftiest heights the Altvater and Spieglitzer Schneeberg rise to 1188 and 4380 feet respectively A number of branches extend in various directions from the main group the most northerly descends to the banks of the Oppa a branch of the Elbe and the most southerly runs parallel with the left bank of the March to the neighbourhood of Olmutz The forests in this range descend along its declivities till they skirt a soil which is variously and highly cultivated The Altvater, which stands on the north western side of the range, is connected by the Hundsrucken (or Dog's Back), a long narrow chain running north-westwards, with the second or

Glatzer-Gebirge a quadrangular mass of mountains, formed by two parallel groups distant between 14 and 19 miles from each other, and extending about 40 or 45 miles in a direction from south east to north west they are united in the south by the snow mountains of Glatz and in the north by those of Schweidnitz in Prussian Silesia They encompass the earldom of Glatz on every side The south-easterly knot which bears the name of the Glatzer Snow Mountains, is, in every respect, the rawest and wildest, as well as the most elevated, region of the whole Glatzer Gebirge The latter throw out four large arms, chiefly of sandstone formation, which connect Prussian-Silesia with Bohemia and Moravia into all which countries they penetrate in a less or greater degree The main range is composed of limestone The principal valleys are at a height of 1200 or 1300 feet above the level of the sea, and produce but scanty crops of grain · the slopes are covered with forests to a considerable point of elevation. The Grosser Schneeberg (Great Snow Mountain) 4414 feet in height, is the loftiest summit of this range The Glatzer-Gebirge abut in the south on the Moravian Mountains, sometimes called the Alten-Gebirge, which descend in a south-westerly direction by Landskron, Zwittau, and Iglau to the Danube, on the left bank of which they form a junction with the Bohemian Forest Mountains, or Bohmerwald-Gebirge The most elevated point in this group is the Plockenstein, whose height is 4176 feet. Cultivation here rises to a considerable elevation, and the backs of the mountains are thickly wooded The western branches of the Glatzer chain slope down into the plains of Bohemia; and its eastern, after spreading over the northern districts of Moravia, disappear in the lowlands in that quarter. A lofty mass, called the Waldenburg Mountains, in the south-westerly part of the principality of Schweidnitz, unites the Glatzer-Gebirge with the third range of the Sudetes

The *Riesengebirge*, or Giant Mountains, which mark the north eastern boundary of Bohemia, rise rapidly from the low region in the south west of Prussian Silesia, where the Bober has its source, to a height of 3000 feet and upwards, ascend north-westwards until they attain an elevation of 5098 feet at the Giant, or Snow-Cap (Schnee Koppe), which lies nearly in the centre of the group, and then descend into the vale of the Neisse close upon the environs of Zittau, in Saxon Lusatia The latter half of this range, its wildest and most inclement region is more commonly known under the appellation of the Iserkamm, or Iser Mountains, and stretches in four parallel masses, with numerous well-wooded branches, for more than thirty miles, and with a breadth of about fourteen from the vale of the Neisse into the north of Bohemia, and into the circle of Lowenberg in Prussian Silesia The sources of the Iser which lie within it at a height of 2400 feet in the Bohemian district of Bunzlau give it its name The southern branches of the Riesengebirge consist of two high groups, running in a parallel line with the main range from the banks of the Iser to the source of the greater Aupa, in the north eastern parts of Bohemia the loftier group of the two has summits which rise here and there to 4000 feet in elevation and throws out branches which run to the level of the Elbe. The mass of the Riesengebirge is granite which also distinguishes its highest peaks and its subsidiary formation is gneiss which is almost wholly confined to the Isker group in Prussian Silesia and mica slate Nearly nine months of winter prevail on these mountains which from being the most elevated of any chain in the north of Germany have not been inappropriately denominated the Giant Mountain The rawness of their climate prevents rye from ripening at a greater height on their slopes or in the valleys, than 2200 feet and wild oats or potatoes thrive above 2100 feet still more indeed beyond that of 1700 wood becomes of stinted growth when this exceeds 3000 and the regions which rise behind it are naked granite In spite of every disadvantage of climate not only are the valleys and offsets of the Riesengebirge but even their slopes half way to the top thickly inhabited their ant[illegible] is occasionally the site of a broad tract of marshy flats and their descent on the Bohemian side is far more abrupt than on the Silesian Of the *Lusatian Mountains* or Lausitzer Berge, the fourth and last range of the Sudetsch branch of the Hercynian chain, which rise from the vale of the Neisse in Lusatia and extend to the banks of the Elbe and Oder, we shall simply observe, in this place, that there is an arm which stretches from its southerly declivity into the heart of that part of northern Bohemia which has the Elbe and Iser for its western and eastern boundaries

It may be remarked generally of the Sudetes, that their higher regions are of various primitive formations, and, in certain directions rich in different kinds of ores The mountain ranges of more moderate height are composed of clay-slate, limestone and amygdaloid, and in parts contain beds of coal The offsets, which stretch deep into Moravia and Bohemia are of flotz trap and sandstone, or grauwacké and basalt, with isolated and towering caps Both sides of the Sudetsch chain abound in streams which spring from their bosom Of these the most considerable on the northern side are, the Oppa, Neisse, Bober, and Neisse in Lusatia, all of which flow into the Oder and on the southern side, the Oder, the three sources of which lie about fourteen miles to the north-east of Olmutz the March, or Morava, which runs into the Danube, the Iser, which is tributary to the Elbe, and the Elbe itself, which springs from the southern foot of the Schnee Koppe

Another considerable range of the Hercynians consists of two mountain ranges, which commence from the left bank of the Elbe at that point of the Bohemian frontier where the river forces a passage into Saxony, and run

ning first in a south-westerly line between the two kingdoms, and then in a south-easterly one between Bavaria and Bohemia, terminate at Linz upon the Danube. The former, denominated the *Ore Mountains of Saxony and Bohemia* (Sächsisch-Böhmisch Erzgebirge), extend from the left bank of the Elbe to the most western quarters of Bohemia which the Eger drains after crossing the confines of Bavaria; from this point also the group called the *Bohemian Middle Mountains* (Mittel Gebirge), an isolated range of basalt and porphyry formation, at no point rising higher than 2496 feet, stretches, with its gentle summits and finely-wooded slopes, across the north-western districts of Bohemia to the vicinity of Leovositz, is nearly a parallel line with the Erzgebirge. The Ore Mountains, whose northern side spreads into Saxony, and descends, in terrace-like declivities, until it approaches the Saale, penetrate, in their south-westerly course, with abrupt descent, to the valleys of the Eger and Biela, which contain Carlsbad and other celebrated mineral springs. The whole range, with few exceptions, particularly the rocky masses of sandstone next the banks of the Elbe, is of granite and gneiss; its conical summits are well-wooded, and it abounds in minerals. Its slopes are inhabited, and cultivated to a considerable height. Its length, on either side of the boundary between Saxony and Bohemia, has been estimated at ninety-five miles, whilst its breadth, in this direction, varies from twenty-eight to thirty-two.

The second and south-easterly line of the Hercynian chain commences in the elevated plain on the right bank of the Eger, and from the sources of the Naab, immediately opposite to the southern extremity of the Bohemian Mittel Gebirge. Under the denomination of the *Bohemian Forest Mountains* (Böhmerwald Gebirge, termed by the natives the Ssumava) it runs between Bohemia and Bavaria until it reaches the point where the frontiers of those two kingdoms meet the north-westernmost extremity of the archduchy of Austria, at the base of the Drey-Sessel Mountain; from this point it divides into an easterly chain, running beyond Rosenberg on the Moldau, and separating Bohemia from the Archduchy; and also into a southerly chain, which terminates on the left bank of the Danube at Linz. Its branches descend into the centre of the south-western parts of Bohemia: one of them in particular, which advances deep into the midland plains, to the junction of the Beraun with the Moldau. The principal chain of the Böhmerwald is between 110 and 120 miles in length, and its average breadth about 20; its general features are those of a wild, gloomy, thickly-wooded, and precipitous region, full of mountain-torrents and valleys. The highest elevations on the side of Bohemia, in the districts of Klattau, Prachin, and Budweis, are the Dreysessel Mountain, which is 3798, and the Kubani, which is 4218 feet high. It is rich in metals and minerals; and that portion of it which lies within the archduchy of Austria exchanges its original name for that of the Karlsberge, or Saarergebirge. The principal rivers which spring from the Böhmerwald are the Naab, Regen, Beraun, Vottova or Ottova, and Moldau.

The last of this long succession of Austrian highlands is that other range of the Hercynian chain by which Moravia is separated from Bohemia, whence it has derived the name of the *Moravian Mountains* (Mährisch Gebirge). At their south-western extremity, they unite with the offsets of the Böhmerwald Gebirge, in the neighbourhood of Linz, spread towards Mölk on the Danube, and direct their course north-eastwards, forming the line of frontier between Bohemia and Moravia, until they form a junction with the Glatzer Gebirge of the Sudetsch chain, as already described.

Waters, Lakes, Rivers, and Canals.—The only sea-coast which this great empire possesses is on the Adriatic, the waters of which, so far as the Austrian dominions are concerned, extend from the Punto di Goro along the eastern territory of Venice, the western, southern, and eastern frontiers of the government of Triest in Illyria, the 'littorale' of Hungary and Austrian Croatia, and the western limits of Dalmatia to their most southerly extremity. In describing this line, the Adriatic not only makes four considerable bays or inlets—the Lagunes of Venice, the Gulphs of Venice and Fiume or Quarnero, and the Bay of Cattaro—but forms several narrow straits called canals, between the islands and mainland in its north-eastern parts; such are the Morlakian canal on the coast of Dalmatia, the canals of Pago, Zara, di Mezzo, Solta, Trau, Brazza, Curgola, Narenta, and others. This line of coast being, however, to a considerable extent, cut off from communication with the bulk of the Austrian dominions by intervening mountains, over which the roads are difficult, the benefits which the Adriatic affords to Austrian navigation are almost entirely confined to the provinces immediately adjacent to it.

The Austrian territory, with regard to lakes and inland waters, will bear a comparison with most countries in Europe, particularly in its southern and eastern provinces. The Platten See, or, as the natives call it, Lake Balaton (from a Slavonian word implying dirt or mud), is in the south-west of Hungary, lies about 60 miles south of Komorn on the Danube. Its surface occupies an area of 504 square miles, including its swampy borders: and it receives the Szala, and upwards of forty streams and rivulets. About 70 miles to the north-west of the Platten See lies the Neusiedler See, which the Hungarians term Fertoe, an unnavigable lake, which contains 120 square miles of surface, and is at least 60 miles in circumference. The incrustations of salt, soda, and vitriol, which are found along its sides, render its water unfit for use. There is a small lake among the Carpathians, the Grüner See, or Green Lake, on the Tatra mountains, in the northern circle of Liptau, in Hungary, the water of which has a green appearance, but proves to be pure and transparent when drawn out. There is an abundance of smaller lakes and swamps, scattered, as we have before observed, over the Hungarian soil: the most remarkable of these are the Paltsh and White Lakes, which are impregnated with natrum, and situated between Theresianopel and the right bank of the Theiss. The adjacent principality of Transsylvania is scarcely less abundantly supplied with lakes; they are of considerable depth, mostly situated on the plateaus of high mountains, and are seldom known to have any outlets. The inhabitants are accustomed to term them Eyes of the Sea. The Tsheger, or Hudosa See, which has an area of 63 square miles, is 14 miles in length, and lies in the north-eastern circle of Doboka, is the largest of the Transsylvanian lakes. Compared with its extent, however, there is no province in the empire which is richer in lakes than that of the Upper Ens, in the archduchy of Austria. The most considerable among them are the Atter See, or Kammer Lake, which the Atter, or Ascha, unites with the Man See, or Mond See (Lake of the Moon), the latter being seven miles long and five miles broad; immediately east of the Atter See, the Gemund, or Traun See, through which the Traun flows into the Hall-städter See, which receives the small streams Ischel, Gosa, and Fuderbach; the lakes Waller, Matt, Alben, or St. Wolfgang's, and Irr, or Zeller. The neighbouring province of Styria has no large lakes; but Illyria, particularly the mountain districts of Carinthia and Carniola, abounds in them. The most extensive are the Wörth See, sometimes called the Lake of Klagenfurt, about two miles distant from that town; it is eleven miles long, has a superficies of 28 square miles, and is very rich in fish; and the lakes Mühlstädt and Ossiach, in the circle of Villach. But none are so remarkable as the Czirknitze See, in the circle of Adelsberg, which is surrounded on all sides by limestone heights, and occupies a surface of 63 square miles: it contains eighteen subterraneous cavities, or reservoirs, through which its waters at times disappear, and again flow in: in this basin are three hills, which, when the water fills it, become so many islands, and on the top of the largest of which, called Vorneck, lies the village of Ottok. Eight streams and rivulets run into this lake, and nine villages and twenty churches are seated on its margin. In Austrian Croatia, besides the Tsuntratz, there are eight lakes among the Capella Mountains, to the south of Carlstadt, called the Pillwitzer Seen, the waters of which descend over magnificent falls from the uppermost basin to the lowest.

Dalmatia, too, is full of lakes, of which we may mention, in the north-west, that of Novigrad, through which the Zermanja flows; lakes Narin, Kadin, and Vrana, south of Zara; the Trocklian, which receives the Kerka before it falls into the bay of Sebenico; and the Rostol, Prelosaz, and Veliki Jesero, which lie more inland. Many of the Dalmatian lakes, however, frequently become dry from want both of rain and springs, which are rare, owing to the calcareous character of this province.

Of the several lakes in the Italian dominions of Austria there are two, of which the property is shared with neighbouring states: the Lago Maggiore, or Lake of Locarno, on the north-western borders of Lombardy, stretches southwards from the Swiss canton of Tessino; its south-western

and southern extremity borders on Piedmont, and nearly the whole of its eastern banks on the government of Milan as low as Sesto Calende, it has direct communication with the capital of Lombardy by the Ticino, or Tessino, which flows through it, and the Tinuello or Naviglio canal. It is above forty five miles in length, and from four and a half to seven miles in breadth. The other lake, the Lago di Lugano, or di Lavisio, is connected with the former by the Tresa; the larger portion of this lake is in the canton of Tessino; it is nearly twenty five miles long, has an average breadth of about five, and on the Lombardy side upwards of forty rivulets flow into it. The remaining lakes of importance in this quarter are situated wholly within the Austrian territory: they are the Lago di Como, which lies a little to the east of the latter, in the north western part of Lombardy. Its length is about thirty-three miles, but its breadth never exceeds more than two and a half. Beyond Bellagio, where it divides into two arms, the eastern is more commonly called the Lago di Lecco. Besides the Adda, which runs through it, 195 small rivers and streams fall into it. The Lago di Garda, the largest lake in Italy, and the most important for its traffic, is politically intersected by a portion of the boundary line between Lombardy and the Venetian territory. It covers a surface of upwards of 290 square miles, runs parallel with the Adige from Riva to Peschiera, west of Verona, for a length of nearly thirty five miles, and has a breadth varying from about five to fourteen miles; it is deep enough to be navigated by large vessels; is traversed by the Mincio, and receives the water of the Sarca and several minor streams.

To this enumeration, lake Iseo, which lies north west of Brescia, and is traversed in its whole length of nineteen miles by the Oglio; Idro, to the east of the Iseo, seven miles long, through which the Chiese flows; and d'Allgh..., of the same length, in the delegation of Vicenza, may be added.

The adjoining earldom of the Tyrol and Vorarlberg has numerous lakes, but they are of limited size; the largest, called the Achen See, in the circle of the Vale of the Lower Inn, does not exceed five miles in length. The northern extremity of the Lago di Garda, and the south eastern part of the Boden See, or Lake of Constance, are likewise comprehended within the Tyrolese borders.

In closing this summary of the principal inland seas which lie scattered over the Austrian dominions, we must not omit the multitude of sheets of water to which the Bohemians, Galicians, and Moravians, give the name of *seen*, or lakes, though neither from their extent nor any other characteristics is this an appropriate term. Bohemia especially, besides the Teschnitz, Plockenstein and Kummer Seen in the respective circles of Klattau, Budweis, and Saatz, possesses so great an abundance of these sheets of water, or *teiche*, that they were estimated forty years ago at 20,000 and upwards, and the extent of all which they covered at 189,600 acres. The Zeperka, near Pardubice, in the circle of Chrudim, is one of the largest, and contains several finely wooded islands. Of late years, however, the number has been much reduced, and the soil recovered has been brought under cultivation. In Galicia, there are said to be nearly 3900 of these sheets of water; and in the Moravian circle of Znaim alone, nearly 500.

The lagunes, or swamps, which are formed along the coasts of the Adriatic in the passage of the Alpine rivers into that basin, are divided into five distinct systems, each appertaining to one of those five rivers. One of them, the Lagune of Venice, stretches from Brondolo to the mouth of the Piave, and is defended against the inroads of the Adriatic by a dam, partly formed by nature and partly by art. Where the waters are quiescent they are termed 'dead' and where they are in motion, 'living' lagunes.

The empire of Austria belongs, to a greater or less extent, to four of the great river systems of Europe—those of the Euxine, Baltic, North Sea, and Mediterranean. The unimpeded navigation of the Danube can now be no longer accounted one of the chief objects which the government of this vast monarchy has yet to accomplish; the powers of steam have triumphed over physical obstacles, and the projected junction of the Rhine with the waters of this great river will gradually render the internal navigation of this empire a source of additional wealth. The Danube, among European streams, is second only to the Volga. It enters the western part of Austria at Passau, on the borders of Bavaria, and flowing in a general E. by S. direction past Linz, Vienna, and Presburg, it turns round at Waitzen, in the heart of Hungary, and has a southerly course till it is joined by the Drave near the village of Almas, to the east of Esseg or Eszeck, the capital of Slavonia. Here it takes a general south eastern direction, and washing the walls of Peterwardein and Semlin, meets and receives the Save at Belgrade; from this point it continues its tortuous course eastwards between the Austrian and Turkish dominions, until it reaches Orsova, below which it enters Wallachia, having traversed the Austrian territory for more than 600 miles, along the whole line of which it is navigable, although from the rapidity of its current, it has hitherto been used only in its descent. Where it first enters Austria, its valley, narrowed by the declivities of the Noric Alps and Bohmerwald, is continued between rocks until it arrives below Linz, nor do the difficulties of its navigation terminate until its steep banks sink down into the tranquil valley which opens above Vienna. Here it divides into several channels, created by a multitude of islands, such as the Lobau, Prater, &c., and then flows towards the borders of Hungary; its passage into this kingdom between Hainburg and Presburg is skirted by the Leitha range of the Noric Alps on its right bank, and the Lesser Carpathians on its left. This point is the termination of the Upper Danube. From Presburg to Komorn the Lower Danube flows through two channels (the northern receiving the Waag, and the southern the Raab), which bound each side of the extensive island of Schutt; uniting at the eastern end of that island it winds between the Bakony Forest (mountains) and the base of the most western arms of the Carpathians through Gran to Waitzen. From Waitzen it describes a very winding line through the spacious lowlands of Hungary into Slavonia, winding round islands, and edged by swamp and marsh. The average width of the Danube in its course through Austria is stated by Lichtenstein to be 1000 feet, and its average depth to vary from 8 to 12 feet; its fall between Vienna and Ofen in Hungary is 77 feet, and according to Hennisch between Ingolstadt (which lies about 90 miles nearly due west of Passau and Pesth) it is 813 Paris feet. The absolute elevation of its surface is set down by the former at ... feet at Passau, 610 at Linz, 480 at Vienna, 512 at Presburg, 2.. at Raab, and 216 at Pesth.

The more important of the streams which discharge themselves into the Danube after they have flowed through portions of the Austrian territory, are,

1. The *Inn*, which crosses the Grisons frontier above the pass of Finstermuntz into the Tyrol, through whose northern district, particularly the extensive and fertile valley of the Inn, it runs to the borders of south eastern Bavaria, which it meets at Kufstein. From this point it runs north and then east through the elevated plateau of Bavaria for about 90 miles to Braunau in Austria, whence it flows northwards, forming the boundary between Bavaria and Austria, until it joins the Danube at Passau, after an entire course of nearly 320 miles. It becomes navigable at Hall, after passing Innsbruck. Its principal tributary stream is the Salza, or Salzach, which springs from the Noric Alps at the Krimmler Tauern above Ronach, on the south western limit of Austria; it traverses the vale of the Pinzgau, turns north and passes through Salzburg, at a short distance above which town it becomes navigable, and terminates a course of nearly 200 miles by joining the Inn at Hanning, a little south of Braunau. Between Braunau and the point where the left bank receives the Saale, it runs between the Archduchy and Bavaria.

2. The *Traun*, another navigable river of the Upper Ens province, springs out of two lakes in the north-western corner of Styria, soon after enters the province of the Ens, flows northward through the Hallstatter and Gemund or Traun lakes, and passing through Wels terminates a course of about 110 miles near Zizelau, below Linz, where it meets the Danube, after its waters have been increased by the Ager, Alm, and Krems.

3. The *Ens*, or Enns, has its source in a lake above Radstadt, in the circle of Salzburg, passes through the north-western part of Styria, and entering the Archduchy of Austria, falls into the Danube near Enns. It receives the Steyer just above the town of that name, and has a course of about 170 miles.

4. The *March*, or Morava, begins its course of about 220 miles at the foot of the Schneeberge (snow mountains), at the most north-westerly point of the border between Bohemia, Moravia, and Austrian ..., and ... southwards

to Littau, in Moravia, between gradually lowering banks; thence it runs through lowlands, where woodland and marsh alternately bound its bed, to Olmütz and Hadrasch. It leaves Moravia above Hohenau in the north-eastern extremity of the Archduchy of Austria, separates that province from Hungary during the remainder of its course, and meets the Danube at Theben, a little above Pressburg. The Thaya has a course of about 170 miles through Znaim from the Moravian mountains; after it has been joined by the Schwartz, which crosses Moravia through Brünn from the Bohemian frontier, it is the principal stream which flows into the March.

5. The *Drave*, or Drau, which rises on Mount Pellegrino, not far from Innichen, on the eastern frontier of Tyrol, drains the Pusterthal as far as Lienz; here it turns to the east, enters Carinthia, and passes Villach, where it becomes navigable: it then traverses the southern part of Styria, flowing past Mahrburg, enters the south-west of Hungary above Varasdin, bounds the north-eastern districts of Croatia, and joins the Danube near Almas, a village east of Eszek, in Slavonia, which is built on its southern bank, after a course of nearly 400 miles. Its chief subsidiary streams are the Gail, which joins the Drave on the right bank below Villach; and the Muhr, or Murr, which issues from two lakes in the mountains of that name belonging to the Noric Alps in the circle of Salzburg, and flows through Styria eastwards to Judenburg, where it becomes navigable: it then passes Bruck, and afterwards taking a southern course runs by Grätz. The last part of its course is more to the east: it meets the Drave on its left bank at the market town of Legrad, about 40 miles east of Varasdin.

6. The *Save*, or Sau, springs from the east side of Mount Terglou, at the western extremity of the Carinthian Alps, takes a south-easterly course above Laybach to the centre of the boundary line between Styria and Illyria, follows that line to its south-eastern termination, then crosses the south of Austrian Croatia to the north-eastern confines of Turkish Croatia, and during the remainder of a course of about 440 miles runs along the frontier between the military frontier province of Austria, Bosnia, and Servia. It empties itself into the Danube between Semlin and Belgrade, and becomes navigable above Agram in Croatia. The largest streams which fall into it are on its right bank,—the Unna, which crosses into the Military-Frontier province from Turkish Croatia above Novi, and forms the line of frontier between the Austrian and Turkish territories to the spot near Usciza, opposite Dubieza, where it joins the Save after a course of about 130 miles; and the Kulpa, which, issuing from a lake near Mount Szagora in Illyria, becomes partially navigable at Karlstadt, and terminates a course of 200 miles and upwards by joining the Save between Sissek and Petrinja.

7. The *Waag*, formed of the White Waag, which issues from the Green Sea, in the northern circle of Liptau in Hungary, and of the Black Waag, which springs from the celebrated Mount Kravola-Hola, flows from their junction, east of Sz Miklos, changes from a south-westerly to a south-easterly direction at Neustadt, and completes its course of 270 miles by traversing extensive plains until it empties itself into the Danube at Komorn. North of that fortress the Waag receives the Neutra, which flows 110 miles from its source in the Ore mountains between Treutsin and Neusohl.

8. The *Gran*, whose source lies in the Ramsa mountains, on the upper plateau of the Hungarian Ore mountains, skirts the southerly feet of the Liptau range until it reaches Neusohl, from which it winds to the south and traverses a long series of plains to its junction with the Danube at Parkany, opposite the town of Gran. Its length is stated to be 161 miles. The Eypel, or Ipoli, likewise falls into the Danube somewhat below Gran; it has its source in the Ohirosky mountains north-east of Sagh.

9. The *Leitha* rises in the Sömmering, south of the Wiener-Wald, in the Lower Ens, runs north-east into the Hungarian circle of Wieselburg, and then flows south-east into an arm of the Danube near Ungarisch Altenburg, above the town of Wieselburg, after a course of about 80 miles.

10. The *Raab* rises on Mount Rechberg, in Styria, takes a southern bend into the western plains of Hungary, where it is navigable, and then flows, between swampy banks, north-eastwards to Raab, near which it falls into the Danube. Its length is about 170 miles, and its average breadth 55 paces.

11. The *Sarvitz* flows from the Bakony Forest, in the west of Hungary, takes a south-easterly direction to Stuhlweissenburg, from which town the Sarvitz Canal renders it navigable; it joins the Danube on the right bank at Bata, to the north-east of Fünfkirchen.

12. The *Theiss*, or Ticza, which is the most considerable of the streams tributary to the Danube, and is said to have a greater abundance of fish than any other river in Europe, issues from three springs on Mounts Szessul, Rusca, and Pietros, in the most north-easterly part of the Transsylvanian range of the Carpathian chain. From two of these springs flow the Black and White Theiss, which unite at Szigeth, whence the river takes a very tortuous course, chiefly, however, in a westerly direction, to Great Siöllös and Tokay, and then descends, with numberless windings, and bordered in general by marsh-lands, through the extensive plains of central and southern Hungary, keeping a line nearly parallel with the Danube until it crosses into the Military-Frontier province, and joins the Danube about twenty miles to the south-east of Petervardein. The whole length of the Theiss is estimated by Malchus and others at 740 miles. It has numerous large tributaries: the Bodrogh is composed of several mountain-streams from the Carpathians, and joins the Theiss at Tokay; the Hernath springs from the Kravola-Hola, in northern Hungary, becomes navigable at Kaschau, and after it has received the Sajo (or Schajo) within a short distance from its mouth, terminates a course of upwards of 150 miles below Onod, about 28 miles to the south-west of Tokay; the Zagyva, in conjunction with the Tarna, comes down from the Matra mountains in the circle of Heves, and forming one stream meets the Theiss at Szolnok. The Szamos rises on Mount Batra, in the north-eastern angle of Transsylvania, and receives the lesser Szamos at Dees, in Northern Transsylvania, after the latter has descended from the western mountains of that principality past Klausenburg: from Dees the Szamos flows in a north-western direction to Szathmar, in Eastern Hungary, and thence continues its course, which is above 300 miles in length, until it reaches the Theiss at Oltsva, about 60 miles due east of Tokay. The Koeroesz or Koeroes is composed of several streams, particularly the rapid, white, and black Koeroesz, which issuing from the Ore mountains in Western Transsylvania, and flowing westwards through the plains of Debreczin and Gross Vardein, unite in one channel a little below Bekes, the capital of the circle of Bekesh in Eastern Hungary: the united stream joins the Theiss opposite to Czongrad. The whole length of the Koeroesz united stream has been computed at 280 miles. The Marosch or Maros rises on Mount Dethegy, south-east of Sz Miklos, near the eastern borders of Transsylvania, has a tortuous course through the heart of that principality, passing near Neumark and Karlsburg, and quits it in the south-west: it thence flows westerly through the great Hungarian plain, passes the towns of Arad and Mako, and falls into the Theiss, after a course, according to Lichtenstern and others, of more than 500 miles, at Szegedin. This river abounds in fish, and gold is found in its bed. The Bega, to which the name of Karos is given in its lower course, has its source near Gyular, on the Hungarian side of the south-west borders of Transsylvania, and following a south-westerly line through the plains of Temeswar, throws itself into the Danube near Szarduk, about eighteen miles north of Semlin, in the midst of extensive morasses.

13. The *Temesh*, or Temes, is another considerable stream tributary to the Danube, for its whole length is not less than 270 miles; this river flows from Mount Samenik, one of the Transsylvanian Alps, situated in the Hungarian Bannat (now the north-eastern part of the Military Frontiers), winds tortuously through the plains, swamps, and woods of South-eastern Hungary and the Military Frontiers, and has its influx near Pantsova, eight or nine miles east of Belgrade.

14. The *Aluta* (Alt, or Olt) rises in Mount Locawas, at no great distance from the source of the Marosh, in eastern Transsylvania, begins a course of 350 miles by running south to Illyesalva, then flows northward to Hopecz, and thence south-westward in the direction of Hermannstadt, from which point it descends to the south, breaks through the pass of Rothenthurm, nearly in the centre of the southern confines of Transsylvania, into the plains of Wallachia, and empties itself into the Danube, opposite to Nicopolis. Within the borders of Transsylvania, it is joined by the Fekete, Hormorod, and close upon the pass of

Rothenthurm, the Czsibin, on which Hermannstadt is built. [See ALUTA.]

15. The *Pruth*, whose source lies in the Ozorna mountains of the Carpathian chain, within the limits of the circle of Marmaros in Hungary, flows in a deep valley through southern Galicia past Koloma to Tshernovitz, and traverses the Galician frontier, from which it forms the boundary between Russia and Moldavia, until it turns to the south-east and falls into the Danube near Reni, below Galatsh.

16. The *Sereth*, which rises from the northerly branch of the Szesul mountain, north-west of the town of that name in the Buckowine, only so far appertains to the Austrian dominions, that it winds round the northern part of that province, and quits it just above the town of Sereth to pass into Moldavia, through which it flows until it reaches the Danube at Fodeni, to the westward of Galatsh.

The *Dniester* does not rise within the Austrian borders. This impetuous river has its source in Lake Miedoborczek, on the north-eastern side of the Carpathian Forest mountains, and in the circle of Sambor in Galicia. It thence runs in a south-easterly direction along the western borders of the Galician plains, winding more to the east as it approaches Zaleszczyk, below which, and until it draws near to Choczym, it forms the boundary-line between Galicia and Bessarabia. The Dniester traverses or bounds the former kingdom for a length of about 190 miles, but is difficult of navigation from the rocks and shallows with which it abounds. The Dneister has various subsidiary streams in Galicia.

Parts of the northern dominions of Austria are likewise connected with the Baltic through the *Vistula* and *Oder*. The former of these rivers originates in the confluence of the White, Black, and Lesser Vistulas; three rivulets which descend from the sides of three mountains of the Beskide range, in the south-eastern part of the duchy of Teschen in Austrian Silesia, and unite at Vistula, a village at the foot of Mount Tankow. After flowing to the northern boundary of that circle, it turns westward, and separates Austrian from Prussian Silesia, until it reaches the confines of Galicia; from this point it pursues a course gradually inclining more and more to the north as it describes the frontier-line between Galicia, Prussian Silesia, the territory of Cracow, and the kingdom of Poland, and it quits the Austrian borders below Zawhicost, having previously passed between Cracow and Padgorze. So early in its course does the Vistula assume a majestic character, that even above Skotshau it attains a breadth of 1700 feet and upwards, which increases to a still greater breadth before it leaves the duchy of Teschen, whilst it becomes fit for navigation at Cracow. The length of its course through Galicia, and along its frontier, is about 195 miles. Its numerous tributaries form the most important streams in the kingdom of Galicia.

The *Oder* is not connected with any other portion of the Austrian territory but the northern margraviate of Moravia and Silesia. Its sources lie near the village of Haslich, about fourteen miles east of Olmütz; from this spot it runs in an easterly direction between wooded acclivities to Oderau in Silesia; hence it soon turns to the north, and meets the Prussian frontier north of Ostrau, where, after receiving the Oppa, which flows along the Austrian-Silesian border west of that town, it continues that line of border until the Elsa (or Oelsa) has descended into it from the southern extremity of the duchy of Teschen, the capital of which is situated on its banks. It now passes at once into Prussian Silesia, after a course in the Austrian dominions of about fifty miles.

A part of this empire is likewise comprehended within the limits of the river system of the North Sea, by the *Elbe*, which commences its upper course from the junction of a multitude of brooks, all issuing from the western foot of the Snow-cap on the north-eastern frontier of Bohemia, in the Giant Mountains of the Sudetsch range, and at an elevation of 4151 feet above the sea. It leaves the mountains at Hohenelbe, descends southerly to Königingratz in eastern Bohemia, then winds round by the south, and flows westerly till it reaches Brandeis, fourteen miles north-east of Prague; from this town it pursues its course through the northern districts of Bohemia to Leitmeritz, and thence to the village of Herrnkretscham, where it crosses into Saxony through the opening of a deep romantic vale, after flowing for a distance of about 160 miles through the Bohemian territory. It has been ascertained that the surface of the Elbe, which has an elevation of 618 feet at Königingratz, declines to 426 feet at Melnick, about fifteen miles north-west of Brandeis, and to 320 feet at Schandau, in the Saxon circle of Meissen. This river does not become navigable until it has received an accession of waters from the Moldau, the most considerable of its collateral branches in Bohemia. The *Moldau* issues from the Black Mountain, one of the Bohemian forest range in the south-east of Bohemia, becomes navigable at Budweis, flows through the heart of Bohemia to Prague, and, after a course of more than 220 miles, falls into the Elbe a short distance to the south of Melnick.

The *Rhine*, another great branch of the river system of the North Sea, forms part of the western boundary between the Vorarlberg and Switzerland, and falls into Lake Constance at Bregenz, after it has, in the former, received the Ill, which flows into the Rhine at Feldkirchen.

In the river system of the Mediterranean are comprehended the streams which discharge themselves into the Adriatic. The *Po* is the only large Austrian river whose outlet is in the Austrian dominions. It first touches Lombardy between Casale and Pavia, where it receives the Ticino, and, bearing its slow and turbid current eastwards, with a slight inclination to the south, for about 190 miles, separates Lombardy and Venice from the principalities of Modena and Parma and the States of the Church, until it falls into the Adriatic; the only exception to this remark is the territory of Mantua, which lies upon its right bank between Luzzara and Stellata, and renders the Po a purely Austrian stream for a distance of fifty miles, after which it forms the frontier between the Papal and Venetian territories. Its surface throughout nearly the whole of this course is at a greater elevation than the land through which it flows; and in spite of the embankments which wall in its waters, they are insufficient to prevent its volume, overcharged by its Alpine tributaries, from bursting over them in the spring and autumn, and creating those numerous swamps and marshes which line it at various points, and extend more particularly over the territory in the vicinity of its four Adriatic outlets; neither is its fall, which does not exceed twelve inches in each mile, calculated to mitigate its devastations. The largest of its subsidiary streams bound or traverse Lombardy, and have their influx on its northern banks. The more important of them are the *Ticino* (or Tessino), which enters Lombardy from the Lago Maggiore at Sesto Calende, marks the westerly line of frontier next to Piedmont for about seventy miles, throughout which it is navigable, and falls into the Po with a somewhat rapid descent not far from Belvedere, about four miles below Pavia: the *Olona*, which rises among the Alps near Vedano, in the Austrian territory, between lakes Lugano and Varese, flows through Legnano and Milan in a south-easterly direction, and discharges itself below Corte Olona, about ten miles north-west of Placentia; the *Lambro*, which first makes its appearance on an eminence near Vassena, between the two southerly extremities of the Lago di Como, directs its course past Monza, east of Milan, and meets the Po at Coldo Este, below Placentia; it communicates by a canal from Cassano with the Adda, and by another from Milan with the Olona; the *Adda*, a considerable river, abounding with fish, which, after entering the Lago di Como from the Valteline, quits it as a navigable stream at its eastern extremity, and thence flows through Cassano and Lodi into the Po, below Pizzighettone, to the west of Cremona; its waters are increased by the Serio and some minor rivers; the *Oglio*, whose source lies in the upper opening of the Val Camonica, in the most northern districts of Lombardy, flows southward through Edolo into Lake Iseo, and then, in a south-easterly direction, receiving the Mella and Chiese in its course, and passing through Calcio, Pontevico, and Ostiano, it falls into the Po below Gazzuolo; and the *Mincio* (or Menzo), which runs under the name of the Sarka from the Tyrol into the Lago di Garda, between Riva and Arco, issues from it at Peschiera, where it assumes the name of the Mincio, directs its course southwards to Mantua, expanding into the lake, at the eastern end of which that fortress stands, and discharges itself into the Po near Governolo, to the south-east of Mantua.

The *Adige* (or Etsch) is next in importance to the Po in the Italian possessions of the house of Austria. The whole length of the Adige is estimated at about 225 miles. The Passeger, Alpon, and Adigetto also fall into this river.

The other streams in this quarter of the Austrian dominions which flow into the Adriatic, such as the Brenta, Piave, &c will be noticed in their proper places

The *Canals* which exist in the Austrian dominions are of limited extent, and merely local in their advantages, for their object in general is merely to facilitate the communication between one particular district or town and another Their whole number is not more than five and thirty, and their entire length does not exceed 500 miles (107 German miles) at the utmost The largest of them, the *Bega* or Temesh Canal, was the work of the Romans, and is an artificial channel, into which the Bega has been brought from its old and winding bed, it runs nearly in a straight line of seventy four miles, from Fakset to Becskerek, through Temeswar, in the south eastern part of Hungary, and is connected with the Berzava Canal. Another and a more important canal in the same kingdom is the *Emperor Francis Canal*, which unites the Danube and Theiss, and, by saving a circuit of about 220 miles, reduces the communication between those two rivers in the south of Hungary from two or three weeks to two or three days, it opens below Bezdan, and joins the Theiss below Bolia about twenty four miles north east of Peterwardein, its length is sixty-seven miles, its breadth is sixty feet, with a depth varying from four to six feet, and it is provided with five sluices The Sarvitz Alibunar, Albrechts, and Garda and Bola Canals, likewise in Hungary, are of little further use than to drain off the waters in the lowlands The Yarszina in Slavonia is the remains of an old Roman canal which it is intended to re open and the Schwartzenberg in Bohemia is only fit for floating down timber, &c There is a canal also between Vienna and Neustadt, thence called the Neustadter, which is thirty seven miles in length and which it is in contemplation to carry through Vienna to the right bank of the Danube However deficient the other parts of the Austrian territories may be in canal, the provinces of Lombardy and Venice abound in them the Naviglio Grande, about thirty [illegible] miles long leads from the Ticino through Abbiategrasso to Milan with its branches, the Bereguardo and Pavia canals the Naviglio della Martesana whose line of twenty eight miles commencing at Milan, and terminating on the right bank of the Adda unites that capital with the Como [illegible] [illegible] connects the Adda with the Serio the Fossa Mantuana [illegible] connects the Serio with the Oglio the Oglio Canal which runs to the banks of the Chiese, and the Fossa Seriola which unites the Chiese with the Lago di Garda the two last mentioned, however serve merely as [illegible] to the districts lying along their banks The whole of the preceding are in Lombardy In the Venetian territory those most worthy of notice are the canals of the [illegible] in the neighbourhood of Rovigo of which the Bianco and Adigetto are each about forty miles long the Monselice or Battaglia, which unites [illegible] and Padua and is about eleven miles in length the Piovego which extends between six and seven miles to the Brenta Mirano the Noncelli and Moduno, from Noncelli to the Livenza and the twenty three canals in the Gulf of Venice amongst which is the Grande, which divides Venice into two parts Lombardy and Venice are likewise full of canals which answer the useful purposes both of irrigating the circumjacent low lands and draining the marshes

Cultivation of the Soil and its Products The variety of soils within the Austrian empire is perhaps not equalled by any other state in Europe But there are few portions of it in which the liberality of nature has hitherto been adequately seconded by human skill and industry This deficiency has, in one branch of cultivation at last been candidly acknowledged, as well as felt both government and people have become sensible that much yet remains to be done before the state of agriculture can be raised to a level with the advance which it has made among most of the inhabitants of western Europe Their first attention has therefore been directed to the formation of agricultural societies and associations, the setting on foot of economical institutes and the foundation of professorships of rural economy in the Austrian universities It is not our business, however, to speculate on the probable effect of these measures, but to speak of the extent to which cultivation has been carried in the Austrian dominions With this view, we shall avail ourselves of Lichtenstein's statements, of which the general accuracy has been universally admitted It appears, then that the cultivable portion of the 255,226 square miles, which constitute the area of these dominions, may be estimated at 239,400, of which 208,570 being about 81 parts in every 100 of the entire area, or 87 parts in every 100 of the cultivable portion, have been rendered available This extent of available surface may be thus distributed —

	Sq miles
Arable land . .	91 300
Gardens	3,040
Vineyards . . .	4 090
Meadow land . .	18 390
Grazing land . .	18,530
Forests and woodlands, &c. .	73,220
	208,570

From this estimate it would seem that the quantity of surface, either unproductive or not yet turned to any account, does not much exceed 18 parts out of every 100 of the whole area, and is less than 13 parts out of every 100 of what is estimated as the cultivable portion of it

When describing hereafter each subdivision of the Austrian territories, we shall have occasion to notice the respective proportions of cultivated or otherwise productive soil which appertain to it, in the mean while we may generally observe, that the proportion of that soil with reference to the surface of each subdivision may be stated, for

	Rank [illegible]				
	Arable [illegible]	[illegible]	[illegible]	[illegible]	[illegible] Forests
	N	N	N	N	N
The Archduchy of Austria at [illegible] 14½ [illegible]	4	4	[illegible]	[illegible]	6
Styria 20	1	[illegible]	[illegible]		8
The Tyrol and [illegible] [illegible]	11		[illegible]	[illegible]	7
Bohemia 18	3	[illegible]	1	3	4
Moravia and Silesia [illegible]			[illegible]		11
Illyria 19	[illegible]			[illegible]	10
Galicia 18	1	[illegible]0	2		3
Hungary Slavonia Croatia [illegible] 14 [illegible]	[illegible]	1	1	1	1
Transylvania, &c, at about 14 [illegible]	[illegible]			[illegible]	2
Dalmatia 13½	8	1	1	11	5
Lombardy and Venice at [illegible] 18 [illegible]	[illegible]		3		9

This glance at the actually producing extent of the Austrian soil naturally leads to a consideration of the species and quantities of products which are derived from it whether vegetable animal or mineral and here the first object of solicitude to a statesman and of inquiry to an intelligent observer, is the proportion which the cultivation of grain bears to the number of human beings whose existence depends upon an adequate provision of this first necessary of life Unfortunately, at the outset of such an inquiry we are called upon to contend against the want of special and authentic data a want which will more or less embarrass us in every stage of our subsequent attempts to ascertain the actual quantities of any other article which Austria produces This circumstance has given rise to the most discrepant estimates of the annual growth of grain in the Austrian dominions Lichtenstern, for instance, assuming it to be but [illegible] 4 000 quarters, Blumenbach upwards of 13[illegible] 10 000, Stein to 820 000, Hassel 7[illegible] 300,000, and some more recent writers as high as 93 600 000, and upwards Of those however who have given their attention to the subject [illegible] appears to us to have handled it with the greatest degree of discrimination, and it is his opinion that, looking at the present state of husbandry and the uniform system of cultivation which is prevalent throughout the empire, with very trifling exceptions, it is safe to estimate the gross quantity of grain produced at 82 070,000 quarters, from which 17 820,000 being reserved and deducted for seed corn, there will remain a surplus of 61,[illegible]0,000 for consumption or export He likewise computes the gross produce to be composed of 38,080,000 quarters of wheat and rye, and 43,990,000 of barley and oats and calculating the average yearly consumption of the former kinds by each individual to be about one quarter, he considers the whole domestic consumption of bread corn to amount to 33,280,000 quarters, leaving a residue of 1 800 000 applicable to other purposes The largest quantities of these four sorts of grain are raised in Hungary, Galicia Bohemia, and Lombardy

and Venice (where every available acre is judiciously cultivated); but there are parts, such as the north of Hungary, Upper Styria, Carinthia, the Maritime Frontier, Dalmatia, the Tyrol, Silesia, and a few others, constituting about one-fourth of the whole territory of Austria, which do not grow sufficient for their own consumption. This remark attaches equally to the province of the Lower Ens in the archduchy of Austria, where, however, the subsistence of the metropolitan population alone creates the necessity of a large importation. This province and the Upper Ens enjoy the reputation of producing the finest wheat in the empire. In most districts there is more wheat grown than rye, and more oats than barley. Besides these descriptions of grain, a very considerable supply of maize, amounting to 5,100,000 quarters yearly, is raised in various parts, particularly the south of Hungary, the Buckowine, Styria, the Tyrol, Dalmatia, Lombardy, and Venice; the last-mentioned kingdom likewise produces from 131,000 to 142,000 quarters of rice, independently of 4400 to 5600 more grown in the marsh-lands of Temeswar, Slavonia, the Military-Frontier districts, Dalmatia, and other provinces in the south. It has been estimated, indeed, that the growth of these several substitutes for wheat and rye increases the annual produce of grain adapted for human subsistence to 41,400,000 quarters. Buck-wheat, millet, podded grains (the Bohemian pea particularly), and lentils, rapeseed (though to no great extent), and linseed, potatoes, and other ordinary vegetables, are more or less cultivated in almost every part of Austria: nor is there any want of an adequate supply of fodder for horses and cattle, in the growth of which, especially of clover and lucern, Lombardy, Styria, the Archduchy, Bohemia, and Silesia take the lead. Though we have no complete accounts of the produce of the meadow lands in Austria, an approximative estimate may be arrived at by assuming the crop of hay and aftermath to be thirty cwt. per annum to each yoch; this calculation will give about 12,500,000 tons for the whole yearly supply. Much pepper (called *paprica*, or Turkish pepper) is derived in Hungary from the *capsicum annuum*; mustard is raised everywhere, the finest in Moravia and Lombardy; aniseed is most grown in Lombardy and the neighbourhood of Znaym in Moravia; ginger is cultivated in the Lower Ens and Slavonia, and truffles chiefly in Lombardy.

Among commercial products the *tobacco*, raised to the extent of 200,000 cwt. in the south of Hungary, is accounted by some the best which is grown in Europe; an excellent kind is also produced in Slavonia, Transsylvania, and Galicia; and no small quantities in Styria, the Tyrol, Lombardy, and other districts. The quality of the latter is generally indifferent; but the whole produce of Austria (about 700,000 cwt.) leaves a surplus for exportation beyond the domestic consumption. Of those 700,000 cwts., about 300,000 are raised in Hungary alone, 80,000 in Transsylvania and the Military Frontier, 100,000 in the Tyrol, and 20,000 to 30,000 in Galicia. Of *hops*, Bohemia not only yields the finest sort in Germany, but has been known in some years to export as many as 12,000 or 15,000 cwts.; Galicia, Moravia, and Transsylvania raise sufficient for their own consumption. Flax, of uncommonly fine quality and great length of fibre, is cultivated about Crema in Lombardy, and other parts of the delegations of Lodi and Brescia; the Silesian is scarcely inferior to it; and, next to the latter, stand Moravia, Bohemia, Styria, the Upper Ens, Hungary, and Carniola. The whole quantity raised in these and other parts of Austria is, however, inadequate to supply the demand, although Transsylvania makes it an article of export to Wallachia. *Hemp* of peculiar goodness is grown in the district of Hanna in Moravia, and in Lombardy, and inferior qualities in Silesia, Transsylvania (which exports large quantities), Styria, Bohemia, Carniola, and the Tyrol, but what is raised in Hungary is of worse colour and shorter fibre. Though hemp is not so universally cultivated in Austria as flax, it ranks among the exports of Lombardy and some other provinces. A substitute for this article, called Ginster, grows in the wild state in Dalmatia and Croatia. The *indigo* of North Carolina has been transplanted to the Milanese, and is said to surpass the original dye both in colour and general excellence; and the *saffron* of the Lower Ens is equal, if not superior, to any grown in Europe: it is one of the products too of Hungary and some of the islands on the coast of Dalmatia. The cultivation of madder-root, which was introduced into the Lower Ens at the close of the last century, has been checked by the return of peace; it is now principally confined to some few districts in the south of Hungary, where it appears to have been raised and locally used at a much earlier date, though the circumstance was not generally known. Besides *anil*, a species of indigo, which is a product of Slavonia and Carniola, woad is reared as a substitute for indigo in Hungary, Bohemia, and in the vicinity of Vienna, Mölk, and other places in the Lower Ens; safflower is no longer a product of Bohemia, where, we are told, the improper use made of it as an article of food by the peasantry has occasioned its cultivation to be prohibited, but it continues to be grown in large quantities in Hungary and Lombardy. Considerable trade, both with the other parts of the empire and foreign countries, is carried on in Hungary in what is called yellow wood (*rhus cotinus*), the stem of a shrub which grows spontaneously in the south-western districts and Slavonia, under the name of the ruja, and is largely employed in some of the processes of dyeing.

The principal medicinal plants cultivated in Austria are—rhubarb, which is raised in Styria, the Lower Ens, Bohemia, and Galicia; liquorice, a favourite article of growth in Moravia, whence 400 tons and upwards are annually exported, and which is also gathered in the wild state in Hungary and Slavonia; manna, derived from the *Fraxinus ornus*, which abounds in the forests of Hungary and Slavonia; and spikenard (*Spica Celtica*), which is collected with much care in the mountains of Carniola, Styria, the Tyrol, and the Upper Ens. The white species of this plant is mostly exported to the Levant, where the Turks and Greeks make use of it in their baths on account of what they conceive to be its invigorating properties. A brandy spirit is distilled in Carinthia and Styria from gentian, which is found in most of the elevated regions; and Iceland moss is collected in considerable quantities on the Carpathian mountains, where it grows in masses of five and six feet in height.

The cultivation of *fruit* is carried to a great extent in every part of Austria, with the exception of Galicia; the best descriptions are raised in the Archduchy, Styria, the Tyrol, Moravia, and Bohemia, Illyria, Lombardy, Croatia, Slavonia, and Transsylvania. Whole forests of plums and damsons are to be met with in Hungary; and 10,000 acres of land are devoted to the produce of the former alone in the Slavonian circle of Syrmia, which annually manufactures above 600,000 gallons of Slivavitza (or Raky), a brandy extracted from the plum and damson, which is a favourite beverage among the Slavonians, and is also made in the Archduchy and Hungary; filberts and chestnuts, figs and almonds, are the growth of Lombardy and most of the southern provinces; some few of the northern provinces also produce the former; currants and raisins are exported from Dalmatia and the adjacent islands; and the grenade, pomegranate, lime, lemon (which is extensively grown in the Tyrol, Lombardy and Venice, Illyria, and Dalmatia), orange, date, and aloe, are natives of some of the southern and south-eastern provinces. In these parts the olive is likewise cultivated largely; the best grow near Cattaro, and the district of Trau in Dalmatia, in which vicinity the produce of oil amounts to 20,000 or 25,000 barrels per annum; Istria also manufactures about 30,000 barrels a year; but the production of this article is not at all adequate to the consumption of the empire at large. Melons are extensively cultivated in Lombardy, Venice, and Hungary; but grown as a garden-fruit only in other parts of Austria. Hungary indeed has been called 'The Paradise of the Melon.' In that country, the fruit is raised both in the open field and garden, and eaten by all classes, of whom the lower use the water-melon, which succeeds best in sandy soils.

We have seen that more than one-third of what is deemed the available soil of the Austrian dominions, is occupied by *woods and forests*; it is equal, indeed, to a fourth part and upwards of the whole area; and it will therefore naturally occur to every reader, that wood must constitute one of the staple productions. The more level districts grow the oak, beech, ash, alder, elm, poplar, lime or linden, birch, willow, and plantain; whilst the fir, pine, larch, cedar, and yew, and, where these will not thrive, the dwarf-pine and juniper, seek the more elevated regions. The Bakony forest in Hungary, which is above fifty miles long, and from ten to five-and-twenty broad, and the Draganesch in Illyria, as well as the forests of the Buckowine, Slavonia, and Dalmatia, abound in oaks of extraordinary dimensions,

and would afford inexhaustible resources to a state like England. The following details from Lichtenstern will however convey a more exact idea of the extent of these forest lands than any general remark. He states the woods and forests of Hungary to occupy a surface of 8,942,740 yochs; of Transsylvania, 4,482,900; of Galicia, 3,845,375; of Bohemia, 2,319,811; of the Military Frontier districts, 2,172,793; of the Archduchy of Austria, 1,829,009; of the Tyrol, 1,508,660; of Styria, 1,507,214; of Lombardy and Venice, 1,465,400; of Illyria, 1,359,461; of Moravia and Silesia, 1,120,285; and of Dalmatia, 633,100; making altogether a total of 31,186,748 yochs, or about 44,550,000 acres. With respect to fuel, we have no means at hand of ascertaining the quantity of wood felled for its supply. The neglect of the forests, particularly in the neighbourhood of large towns, has become so crying an evil among the Austrians of late years, that general attention has been roused to the subject, and much pains are taking to prevent the recurrence of a deficiency of fuel, by fresh plantations, in which Prince Lichtenstein has set a most useful example, above two millions of American trees and shrubs having been added to the woods on some of his estates in the Archduchy and Moravia. Among the products of the Austrian forests we may name potashes, which are chiefly made in Hungary, Galicia, and the Buckowine, Moravia, the Archduchy, and Bohemia. The Hungarian potash, of which about 1500 tons are produced, stands in highest estimation; the supply from Galicia, and from the Buckowine, where fourteen works yield above 300 tons annually, is also considerable; and there are upwards of 800 manufacturers of the article in Bohemia, who produce 850 to 900 tons a year for exportation, besides supplying its domestic consumption, for which nearly 5000 tons are required. Moravia is also a considerable exporter of potashes; and there is a sort made at Deutsch-Brodersdorf, in the Archduchy of Austria, which is said to be superior to any that is produced elsewhere. In no other province is this branch of manufacture carried to any extent. Tar, charcoal, gall-apples, and turpentine should be added to this enumeration of the product of the Austrian forests, though they are not of considerable moment: that of tar, for instance, not exceeding 300 tons; that of gall-apples being not more than 8000*l.* in yearly value; and that of turpentine not exceeding 1000*l.*

The quantity of *wine* annually made in the Austrian territory averages between 570,000,000 and 600,000,000 gallons. Of this produce, Hungary contributes 370,000; Lombardy and Venice, 83,670,000; the Archduchy, 36,000,000; Transsylvania, 15,000,000; Styria and the Tyrol, about 9,000,000 each; Illyria, 10,980,000; Dalmatia, 8,505,000; Moravia, 6,808,000; and Bohemia, 405,000. The quantity consumed by the inhabitants themselves is estimated at 525,000,000 or 540,000,000 gallons. No wine is made in Galicia, the climate, as we have before remarked, being unfavourable to the cultivation of the vine, nor had any been made in the adjoining province of the Buckowine until within the last few years. The 'King of Wines' is a native of the Austrian soil: it is the produce of a district not much more than one hundred square miles in extent, situated on the high grounds of Tokai and Tarczal, which form part of the Heggallya range of the Carpathians, in the circle of Zemplin, in north-eastern Hungary; and it is somewhat remarkable that the generous grape, from which the several species of Tokai are made, should ripen to such perfect sweetness as to be wholly devoid of acid at so high a latitude as 48°. The Tokai, Tarczal, and Mada sorts are esteemed the finest, from combining strength and aroma with the most delicate sweetness. In point of body, the Tallya and Zambor sorts are preferred. Next to these, in the list of Hungarian wines, stands red Menesch, a strong, sweet, and aromatic liquor; and the Ausbruch, or first quality of the Oedenburg growth, is also in demand among those who prefer a less powerful wine. The vineyards in the neighbourhood of Ofen also yield a wine of astringent quality, which is frequently substituted for Burgundy. Slavonia, Croatia, Transsylvania, and the Archduchy, possess wines which, under better treatment, would probably be deemed very little inferior to the best Hungarian or Rhenish. We know of no sparkling wine in Austria excepting that which is brought from the valley of Vinodol, in Croatia. Some strong wines, particularly Muscatel and Porsecco, as well as the delicious Marzemin del Teodo, are produced in Dalmatia; but there are none of marked excellence made in the Italian provinces. The whole exports of this article from the Austrian dominions are estimated at about 75,000,000 gallons.

Having thus pointed out the leading productions which characterize the vegetable kingdom in the Austrian Empire, we will now direct our attention to the resources with which the animal kingdom has supplied it. And here we shall again have recourse to the general estimates made by Lichtenstern, who possessed sources of information to which few other writers on the subject are said to have had access. He tells us, that the domestic and more useful classes of animals, of which the whole Austrian stock is composed, present the subsequent totals, viz.:

Horses (including one to three year old foals) 1,800,000 to 1,900,000; mules and asses, from 60,000 to 70,000; horned cattle (including one-fifth for the young), 9,000,000 to 10,000,000; sheep (of which about one-eighth are of improved breeds), 16,000,000 to 17,000,000; swine, 5,000,000 to 6,000,000; goats, 800,000 to 900,000. Blumenbach estimates the number of horses as high as 2,200,000; and of the sheep, at 19,000,000 or 20,000,000, among which are some few of the Dishley and New Leicester breeds, introduced in 1825.

Malchus, a subsequent and very recent writer, has likewise investigated this subject with much care; and we give the following statement upon his authority, to which we have added the surface of each province, in order to facilitate the comparison between them:—

	Extent of Surface. sq. miles.	Horses.	Horned Cattle.	Sheep.
1. Archduchy of Austria	14,881	118,091	773,177	651,818
2. Styria	8,388	44,752	303,293	136,344
3 The Tyrol	10,845	13,978	253,131	137,301
4 Illyria	10,915	47,492	378,325	539,339
5. Bohemia	20,013	137,593	895,275	1,202,452
6. Moravia and Silesia	10,112	130,418	383,056	448,812
7 Galicia, &c.	32,508	369,477	1,325,735	547,653
8. Hungary, &c.	87,816	700,000	4,500,000	6,500,000
9. Transsylvania	23,288	300,000	700,000	600,000
10. Military Frontier District	12,820	173,432	500,000	800,000
11. Dalmatia	5,748	22,480	53,164	717,121
12. Lombardy and Venice	17,892	59,750	450,000	376,537
		2,110,393	10,495,186	12,657,377

To this statement it may be added that the proportion of oxen to cows is estimated as being that of 7 to 12, and the whole number of mules and asses at between 58,000 and 59,000. With respect to the horse, the finest breeds are reared in Transsylvania and the Buckowine; they are well formed, and of Turkish descent: the Hungarian, on the other hand, are of slender make, and commonly much below fifteen hands, their greatest height; but they are a swift and durable race of animals. The Galician breed, with the exception of the few of Polish blood which are bred in the circles of Zloczoff and Brzerany, are of still more diminutive size, and in general trained from a wild state, but they are remarkably hardy, as well as swift-footed. The Bohemian and Moravian horse is principally adapted for agricultural purposes, whilst the breed reared in the Archduchy, Styria, and Carinthia, are of strong and powerful make, fitted for private use and military service; but the stock of the latter is by no means abundant. In fact, the supply of horses in the Austrian dominions is so inadequate to the demand, that they are compelled to resort to Naples, Mecklenburg, and even our own country for carriage-horses, as well as to various parts of Germany for remounts for the cavalry. The immense studs, which the government maintain in Hungary, Galicia, the Buckowine, and other quarters, where thousands of this useful animal are reared and trained, have, however, greatly contributed to replace the deficiency occasioned by the destructive succession of wars out of which Austria is emerging. Lombardy takes the lead in supplying mules and asses, and conjointly with Venice possesses a stock of between 48,000 and 49,000 of them, above four-fifths of the whole Austrian stock. The mules of Illyria and the Tyrol are larger, stronger, and handsomer than the ordinary race, and as swift as the fleetest horse.

Of *horned cattle* the choicest breeds are reared in Hungary, Transsylvania, Lombardy, and Styria; those of the first two countries are remarkable for their size and handsome horns, as well as the quantity and quality of their flesh; the Lombardy cattle appear to be a cross of the Swiss and Hungarian breeds, and are of handsome size and strong make; the Styrian breeds are the same large, long-bodied, crumpled-horned, short-legged race as the Carin-

thian and Croatian. Although Hungary, Galicia, and their southern neighbours export between 150,000 and 180,000 head of cattle annually, their gross number throughout the empire is said to have been constantly on the decline during the last forty years; the Austrian farmer and grazier having found it to their interest to attend rather to their flocks than their herds. The produce of Austria in tallow, cheese, &c., will be found under the head of its manufactures. Buffaloes are bred in parts of the south of Hungary, as well as in Transsylvania and Slavonia, where they are used for the purposes of draught, it being found that, in those countries at least, a buffalo can draw a heavier load than three native horses, and is indifferent to the quality of his food: their milk is also extremely rich.

The breeding of *sheep* has in most parts been followed up to the injury of the stock of cattle. In Bohemia, Moravia, Silesia, and the Lower Ens, a very marked improvement in quality, arising from the cross of the native breed with the Spanish Merino, has more than counterbalanced a trifling decrease in quantity. But there is no part of the Austrian dominions equal to the east of Hungary and to Transsylvania for the extent of their flocks and pastures. Hungary, indeed, possesses so much larger a supply than is necessary for its own use, that there have been years when it has exported above half a million of sheep and goats, independently of upwards of 170,000 lambs and 1,400,000 lbs. of wool. The latter, however, which is chiefly obtained from the common Hungarian race (*ovis strepsiceros*), a breed with long twisted horns, and long, clotted, hairy wool, not found elsewhere excepting on Mount Ida and in some of the Greek islands, is but of coarse texture. In the western and southern parts of Hungary the breed has been improved by crossing it with Merinos, and now yields very fine wool. Galicia has much increased its flocks during the last thirty years, and greatly improved them by mixing them with Merinos: its stock, which amounted to 375,050 only in 1807, has now risen to nearly 550,000. In the east of Lombardy, the Venetian territory, Dalmatia, and the Quarnero Islands, where the Paduan breed is reared, an excellent quality of wool is also obtained. On the whole, Austria does not, however, produce as much wool as the consumption of her manufacturers requires, and therefore makes up the deficiency by importation from Turkey and other countries. Her native supply has been estimated at 474,000 cwt. per annum; namely, about 10,000 of superfine, 270,000 of fine and middling, and 170,000 of coarse qualities. We should add, that there are five distinct races of sheep bred in Austria—the Hungarian, also called the Zackelschaaf, which we have just described, the common curly-coated sheep, the improved breed, the Paduan, and the pure Spanish or Merino species.

The rearing of *goats* is carried to so great an extent in some parts that no other animal food is eaten at certain periods of the year. We have already stated that their number may be estimated at 800,000 or 900,000. They are principally bred in the mountainous districts of Austria and Lombardy, and good cheese is made from their milk in the Tyrol and Bohemia; but the government are anxious to diminish the stock on account of the injury which they do to young plantations.

Swine are kept in large herds throughout almost every province of Austria, particularly in Hungary, where their flesh is so favourite a food with the Magyar and Slavonian, that in some years two millions have been known to be slaughtered, besides 250,000 exported. They are mostly kept in the vicinity of forests of oaks and beeches, at a distance from dwelling places, being driven into marshes and upon heaths in summer, where they feed on roots, snakes, and other reptiles, and into forests or other feeding grounds in the beginning of October. The markets of Debreczin and Oedenburg, in Hungary, are unquestionably the largest markets for swine and lard in all Europe; it is said indeed that 'an Hungarian would die without lard, as surely as a German without coffee.'. In the north-western parts of Hungary, too, *poultry* is bred in such large quantities that one can scarcely pass from village to village without encountering flock upon flock of fowls, ducks, geese, and turkeys. The same may be said of the districts around the Austrian metropolis, and indeed more or less, of every province within convenient reach of large towns. Capons and turkeys are sent away by thousands from Styria: the latter are the ordinary domestic fowl of the Transsylvanian. The want of geese in Lombardy, where there is an abundance of other poultry, is amply counterbalanced in Bohemia, Galicia, and Hungary, in which quarters the Jews have contrived to monopolize nearly the whole traffic in down and quills. The pheasant of the finest Austrian breed is a native of the first-mentioned of these three kingdoms, though this bird abounds equally in all of them. The Tyrol is celebrated for rearing canary birds, of which between 3000*l.* and 4000*l.* in value are annually sold, and some even in the markets of Constantinople. Game of all kinds is plentiful in most parts, and on the list of wild animals we find the bear, lynx, wolf, fox, martin, chamois-goat, otter, and land-tortoise. The bear and wolf, indeed, are found at times to be such troublesome neighbours in Galicia, that a premium is set upon their heads, and between the years 1812 and 1814, sixteen thousand florins were paid to the peasantry for bringing in 41 of the former and 4938 of the latter. The Tyrol also appears to have been particularly infested with them in 1819, when above 150*l.* were expended in rewards for the slaughter of a lynx, 39 bears, and 12 wolves.

The streams of the Austrian empire abound in *fish*. The sturgeon is found in the Lower Danube and frequently in the Theiss, and some are often caught that weigh fifteen hundred pounds. Next to the sturgeon is the pike, the largest of which are at times forty pounds in weight: it is found with the carp and trout in the Theiss and other rivers; but if we were to proceed in our enumeration, from the lamprey of the Milanese to the salmon of the Vistula, for each intervening stream or sheet of water, we should omit scarcely one species out of the numerous fresh water varieties which exist in other parts of Europe. We must not, however, forget the pearl-bearing muscle which inhabits the rivulets of Hungary, the Archduchy, and Bohemia, and of which the finest are taken in the Votava, where a regular pearl fishery is carried on, and in the Moldau, Ilz, Belika, and Kesselbach. Coral is collected on the coasts of Dalmatia, particularly in Lake Sebenico: and the tunny, mackerel, anchovy, and other sea-fish are caught in the Adriatic. The fisheries on the Dalmatian coast employ 8000 individuals, and yield a yearly return not far short of 500,000*l.*

The rearing of the *silkworm*, though not wholly neglected in other parts of the south of Austria, is no where carried on to such an extent as in the territory of Lombardy and Venice, where it was introduced from the two Sicilies by the emperor Charles V. The western districts of this kingdom, those on the right bank of the Mincio, are said to produce nearly 3,500,000 pounds weight of silk per annum, and those on its left bank, which comprehend the Venetian provinces, about 1,200,000 pounds; both together produce not much less than seven-eighths of all the silk raised in the Austrian dominions, and give employment to upwards of 100,000 hands. This branch of industry is actively prosecuted also in the southern districts of the Tyrol and Illyria, as well as in Dalmatia, which produce conjointly about 800,000 pounds weight. An inconsiderable quantity is likewise raised in the south of Hungary, Slavonia, and Croatia. On the whole it has been computed that the annual production of silk in Austria amounts to 5,370,000 pounds weight, of which from 1,300,000 to 1,700,100 are used for domestic manufacture, and that its value is between 1,500,000*l.* and 1,700,000*l.* sterling. Nemnich states that the Milanese alone yields 230,000 pounds weight more than all Piedmont; but that the quality, though better than the French, is inferior to that of the Piedmontese, next in goodness to which stands the Brescian. A very considerable proportion of this article in the wrought state, chiefly of the sort termed 'organsine,' is exported from the Italian provinces to the English market.

Bees are also an object of much attention in Hungary, Galicia, and Transsylvania; and numbers of those who derive an income from their productions, possess apiaries of 150 or 200 hives. In many parts, however, those industrious insects are abandoned entirely to their instinct, or at least no other care is bestowed upon them besides enlarging the hole in the tree in which they establish their commonwealth, and providing them with a shelf. In Dalmatia, where the small district of Cattaro annually exports above 15,000 pounds weight of wax and honey, the hives are constructed of rough marble with a moveable lid. The finest Austrian honey is the white kind made in Hungary and Galicia; the whole quantity produced is estimated at 350,000 cwt., to which 20,000 cwt. of wax may be added.

Besides the bee, cantharides, or Spanish flies, are a con-

siderable article of export from Hungary and Slavonia; the cochineal insect draws many purchasers into the sandy tracts of Galicia from Turkey and Armenia; and the leech of late years has become an article of considerable trade between Austria and France.

In *Mineral Productions* Austria surpasses every other country in Europe. With the exception of platinum, it would be difficult to name any metal which it does not possess. The richest of its *gold*-mines are in Transsylvania, which has been called 'the gold-mine of Europe,' and in which no less than forty are worked, the most productive being at Voröschpatack, Szalathna, Fazebay, and Nagy-Ag; the annual quantity of pure metal which the whole yield is stated to be about 30,000 ounces. The gold obtained in Hungary is partly found in a pure state, but most commonly extracted from silver, and even at times from copper ore: the mines of Lower Hungary produce about 20,000 ounces yearly, and those in the north-western districts about 5200. There is a mining academy at Schemnitz (or Schmecz-Banya), in the heart of the latter, which has greatly advanced the science throughout Austria, and become the resort of many foreigners who are desirous of studying it. The remaining produce of this metal, in the circle of Salzburg, the Tyrol, and other provinces, including the dust collected in the Danube, Muhr, Drave, Marosch, &c., is not estimated at more than 2400 ounces; so that the total quantity of gold annually accruing to the crown is about 60,000 ounces, the gross value of which may be estimated at 260,000*l*. And here it should be observed, that all ores found in the Austrian dominions are the property of the sovereign. Hungary possesses the richest of the *silver-mines*, in which the mountains about Schemnitz and Nagy-Banya most abound; the whole supply annually derived from that kingdom is about 1,130,000 ounces, of which nearly three-fourths are from the Schemnitz district. The other parts of Austria which produce this metal are Transsylvania, about 36,000 ounces; Bohemia, particularly the mines at Przibaum, in the circle of Beraun, 105,600; the Buckowine, from the lead-mines near Kirlibaba, 9600; Styria, 16,000; Galicia, 4800; and Salzburg and the Tyrol, about 4000. The decline in the richness of the veins which were worked on Mount Tretta, in the province of Vicenza, and at Annaberg, in the province of the Lower Ens, has occasioned them to be almost abandoned of late years. It would appear, therefore, that the annual produce of the silver mines is between 1,290,000 and 1,300,000 ounces, and their value is estimated at rather less than 250,000*l*. No part of the empire either is so rich in *copper ore*, or yields so large a supply of the metal, as Hungary: its most productive works are in the mining district of Schmöllnitz, or Szomolnok, where they employ between seven and eight thousand hands, and yield full two-thirds of the supply from that kingdom, which amounts to 40,000 cwt. at least. The 'cement water, which the Zips brings down to Schmöllnitz, and of which instances again occur near Neusohl in northern, and at Jaszka in south-western Hungary, is too remarkable to be passed over without notice. The rivers in these parts are saturated with sulphate of copper, which is precipitated on all iron thrown into them; in this way from 1600 to 1700 cwt. of copper are extracted from them every year. The copper works at Deva and Szendomokos in Transsylvania produce about 2500 cwt. per annum; the Styrian, 1900; the Illyrian, 1000; those of Galicia and the Buckowine, 2000; the Tyrolese, 1200 to 1500; and the Dalmatian and Istrian, 1000. On the whole, the annual supply of copper which is raised in the Austrian dominions would appear to amount to about 2500 or 3000 tons. More than double this quantity of *lead* is produced; and above one-fourth of it, namely, between 1750 and 2000 tons, proceed from the Bleyberg (lead mountain), Königsberg, and other mines in Carinthia. The Hungarian are next in value, their produce averaging about 1200 tons a-year; and to these may be added 1100 from Bohemia, 250 from Transsylvania, about 35 each from Salzburg and the Buckowine, and 50 from Dalmatia, Istria, and the maritime districts. The whole yearly produce of lead is estimated, however, at 9000 tons. *Iron* is a metal of which almost inexhaustible resources exist, though, on account of the dearness of fuel, they have not yet been turned to any very extensive use: the quantity raised throughout the empire is at present about 80,000 tons per annum, in value about 600,000*l*.; and of this quantity nearly more than one-half is derived from Styria, Carinthia, and Carniola alone, the former province producing about 22,500 and the latter two about 23,000. The most productive of the Styrian mines are those which lie between Eisenerz and Vordernberg, and yield upwards of 14,000 tons, and those at Neuburg and Golbrath, which have been known to yield above 5000; the remainder is supplied from fourteen other works in that province. Its iron, as well as that of Carinthia, which was known among the Romans by the name of 'Noric Iron,' is in general placed for its excellence on a par with the Swedish, and finds its way occasionally into the English market. In the Hüttenberg, Carinthia possesses one of the oldest, and at the same time one of the richest, iron mines in Europe, its produce being from 8000 to 9000 tons a-year. The circles of Beraun, Rakonitz, and Pilsen, in Bohemia, are also rich in this metal, of which the whole kingdom furnishes about 10,000 tons. The other parts of Austria from which it is obtained are Moravia and Silesia, in all about 2600 tons; the Archduchy, between 1200 and 2000; Galicia, 2000; the fourteen works in the Buckowine, 450; Transsylvania, 850 or 900; and Hungary, particularly in the circles of Gomor, Liptau, and Sohl, where the best of its iron is produced, and the first of which supplies 5000 out of the 7000 tons raised in that kingdom. The mountains of Lombardy lying within the territory of Brescia, Bergamo, Como, and the Valteline, where there are 200 shafts open, which supply iron for thirty-seven high-blast furnaces, are also estimated to produce from 8000 to 10,000 tons a-year, a considerable proportion of which is made into cast-iron. *Tin* is raised in no part of Austria but Bohemia, and the whole produce does not exceed 2000 cwt., which is far short of the consumption. The quality, however, is good; and indeed that which is obtained from the Schlackenwalde mine, in the circle of Ellenbogen, is said to be equal to the best Cornwall tin. There is no mine of *quicksilver* in Europe so rich as the mine at Idria in Carniola, the produce of which has, however, gradually declined from 12,000 cwt. a-year to its present amount, which is not above 4000; about 60 cwt. are also obtained from the Zalathna works in Transsylvania, and 640 cwt. more from the mines in Bohemia, Hungary, and Carinthia. Calamine and zinc, to the extent of 6950 cwt., are obtained from the Tyrol, the Archduchy, Styria, and Bohemia: cobalt, about 1600 cwt., viz., from the mines at Dobschau in Hungary, 1300, Styria, 200, and Bohemia, 100; arsenic, about 250 cwt., from Hungary, Transsylvania, Bohemia, and Salzburg; and antimony, about 6000 cwt., of which 2000 from the mines of Rosenau in Hungary, and the remainder from Transsylvania, the Tyrol, and Bohemia. Chrome is got in the Tyrol, and about 700 cwt. of bismuth, and 850 of manganese, principally in Bohemia.

The various species of *salt*, such as sea, rock salt, and that made from brine-springs, exist in abundance. The second species is abundant on both sides of the Carpathians; and the celebrated mine of Wieliczka, which has been worked ever since the year 1253, and lies in the north-western part of Galicia, is but an inconsiderable inroad upon a massive bed extending for a length of nearly 600 miles along the Carpathians, as far as Okna in Wallachia. Of its yearly produce, which amounts to 35,000 tons, three-fourths are composed of what is called 'green-salt,' zielony sól, a kind that abounds in mineral particles; the next kind, szybikowa sól, or 'shaft-salt,' is much purer and sharper; but the third, oczkowala sól, or 'crystal-salt,' which is perfectly pure and transparent, is the quality used for the table. This, and the neighbouring mine at Bochnia, which yields about 12,500 tons per annum, are said to produce a net revenue of at least 600,000*l*. yearly to the state: and the whole quantity of salt of all kinds raised in Galicia and the Buckowine is estimated at 82,500,000 tons, which include 15,000 of remarkably white colour and fine quality, obtained by the process of boiling. The mines and boiling works in the archduchy of Austria, which are principally situated at Hullein, Ebensee, Ischel, and Hallstadt, with those of the Salzberg, near Aussee in Styria, and at Hall in the Tyrol, yield a further supply of between 78,000 and 79,000 tons; to which we must add 50,000 extracted from the twelve mines in Transsylvania, and 34,000 chiefly from the six rich mines of the circle of Marmaros in Hungary. Bay-salt, too, though to the limited extent of 30,000 tons, is supplied from the salt-pits along the coasts of Dalmatia and Istria, and in the maritime districts and Quarneric islands in the Adriatic. The annual quantity of salt, therefore, which the Austrian territory produces, appears to be about 275,000 tons, the whole of which is the produce of

a government monopoly of the most profitable kind; a deficiency, however, of between 20,000 and 30,000 tons still remains to be imported for the consumption of the southern provinces. Of vitriol, Austria raises about 10,600 cwt. almost wholly in Bohemia and Illyria; alum, about 11,500 cwt., in the proportion of 3500 from Bohemia, 4600 from Moravia, 600 from the Archduchy, and 2300 from Hungary; saltpetre, about 350 tons, of which 340 are made at the government works in the east of Hungary, whence an almost unlimited supply might be obtained; and soda, which abounds in Hungary, particularly on the moors of Debreczin in the circle of Bihar, where above 10,000 cwt. of the purest quality are frequently obtained in the course of the year. The saline morasses of that kingdom likewise furnish an abundant supply of the finest sort of sulphate of soda, or Glauber's salts.

Although the forests furnish nearly the whole of the fuel which is consumed in the Austrian dominions, there is scarcely a province which is deficient in *coal*. At present, however, the whole quantity raised is not estimated at a higher value than 60,000*l*., and scarcely amounts to 100,000 tons, which are obtained in the following proportions: from the Archduchy, at the mines near Wiener-Neustadt, 10,000, and from four others in the Upper Ens, about 5000; from nearly forty mines in Bohemia, about 70,000; from Styria, 15,000; from the Tyrol, 10,000; from Moravia, 10,000, at the mines near Rossitz, where excellent coke is also made; from Hungary, chiefly the Oedenburg mines, 28,000; and from Galicia, 17,500. The remainder, about 35,000 tons, is raised principally in the district of Varese, the province of Brescia, and other parts of the kingdom of Lombardy and Venice. And we may here incidentally remark, that notwithstanding the abundance of peat or turf which is found in many districts of Styria, Carinthia, the Archduchy, Hungary, and Galicia, this substance is nowhere used as fuel in any quantity but in the first three of those provinces, where, however, it is mostly employed in manufacturing processes. Every part of the Austrian dominions possesses more or less of native *sulphur*, but more particularly Galicia, whose annual produce is 2500 cwt.; Hungary, which could supply nearly the whole consumption of the empire from the works at Radoboi in the circle of Varasdin, produces, in conjunction with Bohemia and Transsylvania, about 3000 cwt.; and Styria produces about 450 cwt. Mineral tar and oil are chiefly obtained in Galicia and the Buckowine, where the country-people denominate them 'roppa;' but they are also produced, though but partially turned to account, in the Archduchy, Hungary, Bohemia, Illyria, and Dalmatia.

Among *precious stones*, the Bohemian carbuncle and Hungarian opal stand in highest repute. The former, particularly the carbuncle or garnet found in the circle of Leitmeritz, is considered superior in depth and brilliancy of colour, as well as in hardness, to the oriental stone; it is a production, also, of the Lower Ens, Hungary, and other mountain districts in Austria. The latter is procured of the finest quality from the opal mines on the Peklen domains in the circle of Szarosh, which occupy a surface of nearly 130 miles; inferior kinds are found in Transsylvania, Moravia, and the Lower Ens. The chalcedony, ruby, emerald, jasper, amethyst, topaz, carnelian, chrysolite, and beryl, as well as what is called the 'marble diamond' in Hungary, must be added to the list of Austrian precious stones. Marble of every description and variety of colour and vein is raised either in Hungary, Transsylvania, Bohemia, the Archduchy, Tyrol, Styria, Illyria, Dalmatia, or the Italian possessions of Austria, in which latter the Veronese alone is said to possess 106 distinct varieties. Carinthia and Styria, indeed, supply a quality of white marble no way inferior to the celebrated 'Bianca di Carrara;' that of Neo Paros, an island on the Dalmatian coast, enjoys equal repute. Alabaster, too, is of common occurrence in various parts, the finest being a product of the Salzburg and Galician mountains; the serpentine, black tourmaline, and other valuable substances of this class, are found both in the German and Italian provinces. Gypsum is obtained in the Archduchy, Tyrol, and Galicia; considerable beds of graphite, or black-lead, of which only one is worked, exist in the Lower Ens, and it is a product likewise of Moravia, Hungary, and Transsylvania. The best slate in Austria is found at Vishnyo, in Hungary; and the hardest and finest flint in Galicia, from which the whole army is supplied. The Styrian grindstones are of a much inferior quality to those which are obtained from the quarries at Bergamo, and exported to the United States and England. Bohemia, Styria, and the Upper Ens, as well as other parts of Austria, produce excellent alumine and silex for the manufacture of china and earthenware; indeed, the porcelain made in the imperial manufactory at Vienna, for which the material is procured from Engelhardzell in the Upper Ens and Passau, is considered superior by many even to the Sèvres or Berlin china for purity of colour and durability. The meerschaum, of which the highly prized heads of tobacco-pipes are made, is a product of Moravia and Hungary; the species found at Krumau in the former province is esteemed equal in quality to the Kiltshikoran of Anatolia. Neither is Austria anywise deficient in clays, stone, earths, or such other mineral substances as are adapted to the use of the potter, builder, or dyer.

Every part of the Austrian dominions abounds in *mineral waters*, and it is said that 1500 distinct springs may be enumerated. Among the 150 which belong to Bohemia, none enjoy so universal a repute as the waters of Carlsbad, Töplitz, and Eger, the last of which possesses acidulous springs scarcely equalled by any others in Germany. The waters of Bilin, precisely similar to the Selter, the ferruginous springs of Liebwerda, closely resembling those at Spa, and the waters of Sedlitz and Seidschütz, which yield a salt as much esteemed for its medical qualities as the Epsom or Cheltenham, are all within the Bohemian borders. The adjacent province of Moravia is likewise full of mineral waters, and numbers of invalids from distant countries resort to the powerful chalybeate springs at Carlsbrunn in Austrian Silesia. The acidulous waters of Rohitsch, near Cylly in Styria, have, from their sparkling character and agreeable flavour, acquired universal favour, in Italy especially, where they are known by the name of 'acqua di Cilli.' In Hungary, no less than 352 mineral springs are said to have been already discovered. The most esteemed springs in this kingdom are at Bartfeldt and Füret, and partake of the same qualities as the Pyrmont water. The famous Herculean baths of the Romans have given celebrity to Mehadia and its sulphurous springs in the Hungarian division of the Military-Frontier districts; but the recollection of their former glory has not been sufficient to preserve them from entire neglect in modern times. Transsylvania has also an abundance of mineral waters; in the Archduchy of Austria there are several, of which little account is made, with the single exception of the warm sulphur springs at Baden, about twenty miles south of Vienna, with whose nobles and loungers it is become a favourite place of summer resort. The alkaline steel springs of Dorna-Handreni in the Buckowine; the acidulous waters of Krynitza in Galicia; the warm and delightfully clear sulphurous springs of the Gasteiner Wildbad in Salzburg; the ferruginous waters of Rabi and Pejo in western Tyrol; the warm springs of Abbano, Battaglia, and other spots along the Euganean declivities in the Venetian territory; and the acidulous waters, which flow near Lessina in Illyria;—these are but a small number of the mineral sources which form so marked a characteristic of the Austrian soil. Many of them have become articles of consumption in foreign climes, and among other places Sedlitz and Seidschütz export 500,000 stone bottles, Rohitsch 400,000, and Bilin 50,000, filled from their several springs.

In the beginning of this article we spoke of the *population* of the Austrian Empire as being estimated, in the year 1831, at 33,630,381 souls; and it cannot but prove interesting to look back and trace the constantly fluctuating amount of this population during the last hundred years. At the decease of the Emperor Charles VI., in 1740, the possessions of the house of Austria had a population of 17,493,000 souls; at the close of what is called the 'seven years' war,' in 1763, the disasters of that war had reduced it to 16,243,000; on the death of the Empress Maria Theresia, in 1780, an interval of seventeen years only having elapsed, it had increased to 22,636,000; during the following ten years—which were rendered memorable by the attempts at social reform made by Joseph II., a monarch who displayed more resolution than judgment, and more benevolence than foresight—it rose to 24,427,000; these numbers were found to have increased after the treaty of Campo Formio, in 1797, five years subsequent to the present emperor's accession, to 24,609,497; in 1803, after the new settlement of the German states, in which Austria was indemnified for preceding losses, the number of its inhabitants was

25,548,000; in 1805 it was reduced under the treaty of Pressburg to 23,067,892; and again, in 1807, under that of Vienna, to 20,695,883. Upon the downfall of Napoleon, the restitutions and cessions of 1815 enlarged the dominions of Austria beyond all former limits: in 1818, therefore, we find them inhabited by 28,413,482 individuals; in 1825 they had increased to 31,624,888; and six years afterwards, as we have already seen, to 33,630,381. From these last data it will be found that the average yearly increase of the population of Austria during the thirteen years between 1818 and 1831, was 401,299; now as that interval was marked by frightful losses occasioned by the cholera in Hungary and many of the adjacent provinces, we may safely assume that average in our estimate of the existing population, and conclude that it does not fall short of 34,630,000 souls. We are not possessed of equally safe data, however, as to the proportions with reference to sex; but even here we shall not fear to be misled by presuming them not to have varied, in any essential degree, since the year 1818, when the ascertained numbers were 13,845,947 males and 14,567,535 females; showing an excess of 721,588 in favour of the latter. In the same proportion, the present classification of sexes would give a proportion of about 16,880,000 males to 17,750,000 females. These proportions are, however, by no means uniform throughout the several provinces; for the excess of females in Bohemia is 1 3·16ths in every hundred souls, and in Moravia 1 2-9ths; but in the Archduchy it is only 1 in 800, and in Hungary no more than 1 in every 1000; indeed, it ceases altogether in Transsylvania, where the male inhabitants exceed the female by 1 in every 4300. About four millions and a half of the whole population are said to be dependent upon trade and manufactures, and the remaining thirty millions upon agricultural and rural occupations: one-fourth, too, are generally considered as inhabitants of towns.

The great mass of the Austrian population is composed of six distinct *races*—distinct as much by descent, features, and bodily conformation, as in character, language, manners, and usages. Nearly one half, about 16,300,000, is of Slavonic extraction. Of this race are the Wenden or Vandals, in Illyria and the eastern parts of Styria; the Slawaks and Hinzes settled in those districts of the Archduchy which border upon Hungary and in certain circles in the latter kingdom; the Czeches, *i.e.* aboriginal Bohemians, of Bohemia and parts of Moravia; the Hanaks, Slawaks, and Podenlaks of Austrian Silesia and Moravia; the Poles (of two distinct classes, the Mazuraks and Gorals), and Russniaks, or Russians of Galicia and the mountain confines of Hungary and Transsylvania; and the Morlaks and Montenegrines of Dalmatia, the military frontier districts, &c. The second race in numerical importance, and perhaps the first in point of intelligence and usefulness, is of German descent: their numbers are estimated at 6,400,000; they form an integral part of the population in the Archduchy, Styria, Carinthia, the Tyrol, Moravia, and Bohemia, but constitute separate communities in Hungary, where their numbers are between 800,000 and 900,000; in Transsylvania, where they are denominated Saxons, and have increased to about 220,000; in Galicia, where there are 186 colonies, consisting of about 75,000 individuals; in the Military-Frontier districts to the extent of about 10,000; on the Kulpa, in Carniola, where the Gotschewers amount to 47,000 or 48,000 heads; and in the Venetian territories around Asiago, where they have lived isolated for centuries under the name of the Sette and Tredici Communi, and are about 55,000 in number. The third race are the Magyars, who migrated from the Kuma and settled around the banks of the Danube and Theiss in the ninth century; they are esteemed to be of pure Asiatic extraction, akin to the Tartar and Turk, and are a fine and intelligent class of men; they are about 4,500,000 in number, form the majority of the population of Hungary and Transsylvania, and are possessed of the finest lands in both countries; some few of them have also settled in the Buckowine and Military-Frontier districts. The Italians compose the fourth race, to the extent of about 4,770,000; they constitute nearly the entire population of Lombardy and Venice, inhabit a considerable portion of the south of the Tyrol and the government of Triest, and are scattered throughout Dalmatia and other parts of Austria. The fifth race are the Valaks, Dako-Valaks, or, as they term themselves, Rumani, a medley of antient Thracians, Romans, and Slavonians, in number about 1,950,000 whose language is evidently a corrupted dialect of the Latin: recent investigations, indeed, have proved their Roman descent, as well as that they colonized Dacia at an early period, and were afterwards allowed to recross the Danube in the reign of Aurelian: this ill-treated race of men are chiefly found in Transsylvania, Hungary, and the Buckowine. The Jews, to the extent of about 520,000, form the fifth race: nearly one-half of them are settled in Galicia, and about 160,000 in Hungary; the remainder are dispersed over Bohemia, Moravia, and other parts of Austria. The residue of the population, in number about 190,000, consists of Zigeuner, or gipsies, of whom upwards of 100,000 are conjectured to exist as a wandering people in Hungary, Galicia, the Buckowine, and other provinces; Arnauts, Greeks, Armenians, French, &c.

The established *religion* of Austria being the Roman Catholic, it will be inferred that it is the religion of the majority of its inhabitants; and this inference will be corroborated by the following estimate:—

Roman Catholics, and Greeks received into union with them, 27,800,000; Greeks not in union, 3,000,000; Protestants, of the Lutheran and other denominations, 3,200,000; Jews, 520,000; Gipsies, Mohammedans, &c., 110,000.

A reference to our former enumeration will show that, with a view to the civil administration, either the antient subdivisions of the soil have been retained, which has been the case in general, or a more convenient distribution has been formed. We have, therefore, as the component members of this monarchy, seven kingdoms—Hungary, Bohemia, Slavonia and Croatia, Dalmatia, Galicia and Lodomeria, Illyria, and Lombardy and Venice; one archduchy, that of Austria; one arch-principality, Transsylvania; one Margraviate, Moravia; five duchies, Styria, Salzburg (which now forms part of the Archduchy of Austria), Carinthia and Carniola, which are incorporated with Illyria, and Silesia, which is united with Moravia; and two princely earldoms, those of the Tyrol with Voralberg, and of Görz and Gradisca, which has been consolidated with the kingdom of Illyria. These several principalities, or indeed provinces, are united under an hereditary monarchy, the head of which assumed the title of Emperor of Austria, King of Jerusalem, Hungary, &c., on the 11th August, 1804; and by a solemn act on the 6th of August, 1806, in which he renounced the style of Emperor of Germany, determined the title and armorial bearings which the emperors of Austria should thereafter use. The prefix of Apostolical Majesty has been borne by the Austrian sovereigns ever since the year 1758. In his character of sovereign of certain states in Germany, which include the Archduchy, Styria, Illyria, the Tyrol and Voralberg, Bohemia, Moravia, and Silesia, with the principalities of Aufschwitz and Zator, he is one of the six leading members of the German confederation. As Emperor of Austria he enjoys every right and prerogative attached to sovereignty, whether legislative, judicial, or executive, with the exception of certain limits as to the exercise of the legislative and executive powers in Hungary and Transsylvania, which he shares in common with the diets of both countries. Every other province but Dalmatia, the Military-Frontier districts, and the maritime territory, has its provincial assemblies; the rights of these representative bodies are, however, of very dissimilar nature, though few of them are invested with any higher privilege than that of submitting reports and representations to the sovereign, and partitioning the quota of the taxes which he may impose among the properties and individuals in their respective provinces. The succession to the crown of Austria is in the male line, and in default of this passes into the female, as determined by the Pragmatic Sanction, promulgated by the Emperor Charles VI. on the 19th April, 1713. The minority of the heir-apparent ceases, as respects the kingdoms of Hungary and Bohemia, on his attaining the age of fourteen; but, as respects the empire at large, not until he has attained the age of eighteen. During a minority the empress-dowager, or next relative of the minor, assumes the regency, provided no special provision has been made by the deceased monarch; but this rule does not apply to Hungary, where the Palatine or Lord-Lieutenant is hereditary regent, by virtue of a law enacted in the year 1485. The emperor professes the Roman Catholic faith, and cannot, under a family compact, marry any female unless she be of royal blood. The princes and princesses of the imperial family are styled archdukes and

archduchesses, and the heir-apparent or presumptive, Imperial Crown Prince. The great offices of the imperial household consist of a Grand Marshal, Lord Chamberlain, Master of the Horse, and Grand Master of the Court; but on great occasions the hereditary great officers of the several provinces, to the number of 134, are summoned to increase their splendour.

The *administration of public affairs* partakes of a twofold character: on the one hand, there are departments which superintend and conduct the general affairs of the state; and, on the other, there are offices the duties of which are confined to isolated portions of the monarchy. At the head of the former is the Council of State and Conferences, consisting at present of four members, which exercises a general control over every other department, and communicates its decisions to the Privy Cabinet, composed of a director and several secretaries, by whom those decisions are made known to the heads of offices. The great departments for general affairs, or, as we should term them, secretaryships of state, are—1. The Privy Chancery of the Household, Court, and State, divided into two sections, the one for domestic and the other for foreign affairs, but under one general presidency—that of the prime minister, or chancellor of state. 2. The Council of War, which, under its president, takes charge of every matter connected with military or naval affairs, as well as of the political government of the Military-Frontier districts. There are thirteen military administrations, subordinate to this council, for the various provinces. 3. The Ministry of Finance, under a special minister, controls every department connected with finance, taxation, coining, government printing, stamps, the post-office, the provincial authorities, the property of the state, mining, manufactures, and commerce. Subordinate to it is the Imperial Board (Hof-Commission), for systematizing the land-tax, and regulating the maintenance, &c., of the military. 4. The General Directory of Accounts.

The special departments, which are subordinate to the section for domestic affairs of the Privy Chancery, consist of the United Chancery, together with the Board of Education in connexion with it: its superior chancellor (for there are three others) is minister of the interior, and its province extends to every subject of a civil character which concerns the general welfare, but not to the affairs of Hungary or Transsylvania. Those of the former kingdom are under the cognizance of the Hungarian Chancery, to which a Board of Education is also attached; and there is another Chancery for Transsylvania, with a special Board for regulating all matters connected with education, religion, and endowments. The United Chancery has twelve provincial governments under its control, the respective seats of which are Vienna, Prague, Brünn, Lemberg, Linz, Grätz, Laybach, Triest, Zara, Innsbruck, Milan, and Venice. Each of them has a president, in general a vice-president, and as many members as are requisite. They form a subordinate executive for the conduct of all public business which does not immediately fall under the cognizance of the judicial, ecclesiastical, and military authorities.

The *administration of justice* is under the superintendence of the Superior Ministry of Justice (oberste Justiz-stelle), at the head of which there are two presidents. It is divided into two senates: one at Vienna, for the provinces of Bohemia, Galicia, Germany, Illyria, and Dalmatia; and the other at Verona, for the kingdom of Lombardy and Venice. There are nine high courts of appeal and criminal judicatures subordinate to them: their seats are in Vienna, Prague, Brünn, Lemberg, Innsbruck, Klagenfurt, Zara, Milan, and Venice. Next there are sixteen special courts, termed Landrechte, in as many different towns, for adjudicating matters relating to the nobility, clergy, and corporate bodies; and local courts (Ortsgerichte) for such matters as concern the common laity. In some provinces, particularly the Italian, there are likewise civil and criminal tribunals of the first instance. There is a special court at Vienna called the Superior Earl-Marshal's Office, for deciding all judicial matters in which members of the imperial family and foreign envoys are interested. Suits in commercial and exchange concerns are determined by the Mercantile and Exchange Courts, which exist in every principal town; and suits in mining concerns are referable to the Mining Courts, which have delegate referees (berggerichts-substitutionen) under them. Criminal matters belong exclusively to the local courts and magistracy. The clergy are amenable, in all temporal matters, to the temporal judicatures; but the military to their own tribunals. The sovereign enjoys, excepting in very few cases, the prerogative of making laws. All provincial statutes have been abolished; nor are any complete codes extant but in Hungary and Transsylvania, which have their own courts of judicature.

The maintenance of public order and prevention of offences are vested in the ministry of police, assisted by provincial and district boards. The censorship of the press is also wholly confided to its jurisdiction; but Hungary falls no way within it. Medical police is carefully attended to, and a surgeon and physician, paid by the state, have charge of every circle or district.

When treating hereafter of Hungary and Transsylvania, we shall have a fitter opportunity to speak of the judiciary systems in those countries.

Another most important prerogative enjoyed by the sovereign of Austria is that of an irresponsible control over the public *income and expenditure*. This is a subject, however, which it is impossible to handle with minuteness or accuracy of detail, for we are not disposed to follow others in attempting to unravel that over which the government has, at least by withholding information, thrown an almost impenetrable veil of mystery. We shall therefore confine ourselves, on the present occasion, to quoting what Malchus, himself once minister of finance under two German sovereigns, has stated as the general result of very diligent inquiries. 'A portion of the public income,' he observes, 'is derived from the immediate property of the state, consisting of crown lands and mines, and another portion from royalties and monopolies; but the greater part proceeds from taxes and rates, which are not, however, raised according to any uniform system for the whole state. The total amount of this public income, which, in the absence of official data, can only be estimated with an approximative approach to the reality, can scarcely be less, after allowing for the expense of collection and management, than 150,000,000 gulden (about 14,250,000*l.*); indeed it ought perhaps to be set down at a higher sum (This is also the estimate of Blumenbach.) Towards this amount the immediate property of the state contributes about 15,000,000 (or 1,425,000*l.*); a sum of 61,000,000 (or 5,795,000*l.*) is raised by direct taxes, and another of about 32,000,000 (or 3,040,000*l.*) by indirect taxation and royalties. The amount contributed by the different subdivisions of the empire has been thus computed (viz. by Hassel, in his statistical outline):—'By the province of the Lower Ens, 19,500,000, or 1,882,500*l.*; the province of the Upper Ens, with Salzburg, 6,000,000, or 570,000*l.*; Styria, the same, 570,000*l.*; the Tyrol, 4,500,000, or 427,500*l.*; Illyria and the Maritime Territory, 6,700,000, or 637,500*l.*; Bohemia, 19,500,000, or 1,852,500*l.*; Moravia and Silesia, 8,000,000, or 760,000*l.*; Galicia, 10,000,000, or 950,000*l.*; Hungary, 33,217,000, or 3,155,700*l.*; Transsylvania, 6,500,000, or 617,500*l.*; Dalmatia, 500,000, or 47,500*l.*; and the kingdom of Lombardy and Venice, 18,000,000, or 1,710,000*l.*' The sum total of these several amounts is, however, but 13,200,700*l.*, which is above one million sterling less than Malchus's estimate. With respect to the expenditure, he adds, 'we labour under a paucity of data, and these refer to earlier times; they are indeed of so imperfect and equivocal a description, that they cannot possibly serve as the groundwork of any estimate of the present amount of the public expenditure.' And his opinion is borne out by that of the writer who has supplied him with the preceding amounts. 'A much greater degree of uncertainty prevails,' says Hassel, 'with regard to the expenditure than the income. This only is not to be questioned, that the army alone absorbs one-third of the whole revenue, though not so much as Lichtenstern asserts, nearly 140,000,000 gulden (13,300,000*l.*); whilst he states the expenses of the crown and civil departments to be 54,000,000 (5,130,000*l.*). All personal and many other charges are defrayed by the sovereign out of his private property, which is not in any way connected with the public treasury, and is of an uncommonly large amount.' However important the subject may be, we must rest satisfied, therefore, with our present ignorance; and we close it with remarking, that the amount of the public debt, according to Malchus's calculation, 'may be estimated at between 800 and 850 millions of gulden,' or from 76,000,000*l.* to 80,700,000*l.*; and that 'the amount of paper-money has been reduced to 55,411,538 gulden,' or 5,264,100*l.*

The management of the *military resources* of Austria, as

we have before remarked, is committed to the council of war; these resources are of two classes, the one the peace and the other the war establishment, as shown in the following statement:—

The Infantry, in time of peace, consists of 58 regiments of the line, viz.,		
15 Hungarian and Transsylvanian, 2616 rank and file each		39,240
43 from the remaining provinces, 1892		81,356
		120,596
3 regiments of Grenadiers, 20 battalions of 900 each		18,000
13 regiments Riflemen, viz., 1 of 2320, and 12 of 580 each		9,280
17 Frontier Regiments, viz., 13 of 2723, and 4 of 2482 each		42,845
4 Garrison Battalions of 1414 each		5656
		196,377
The Cavalry, in time of peace, is composed of		
8 regiments of Cuirassiers of 824 rank and file each	6,592	
6 „ Dragoons ditto „	4,944	
7 „ Light ditto 1134 „	7,938	44,970
12 „ Hussars 1698 „	20,376	
4 „ Hulans 1280 „	5,120	
The Artillery, both in peace and war, is composed of		
5 regiments of Field Artillery of 2763 each	13,815	
Corps of Bombardiers and Artificers	1,075	
Garrison Artillery in 14 districts	2,400	
The Corps of Labourers for Campaign Artillery	500	
Ditto Engineers, viz., 6 companies of Sappers, 970; 2 battalions of Pioneers, 1109	2,079	30,857
Miners, 5 companies	721	
Pontoonmen, 2 battalions, 1067 and 1200	2,267	
Military and Artillery Drivers, &c.	8,000	
To all these may be added the regiment of Horse Gend'armes in Lombardy, 640 men; 9 battalions of Frontier Guards, 3200, Invalids, 10,000; and, lastly, the Archers of the Body Guard, 67; the Noble Hungarian Guard, 3 officers and 55 privates, all noblemen, 58; and the Yeomen (Trabanten), 131; with the Palace Guard, 222		14,298
Total military force on the peace establishment		286,502

When, however, the army is to be placed on the war footing, the subsequent augmentations take place:—

In the Infantry, an increase of 660 to 700 rank and file to the 43 regiments not Hungarian	29,240
Levying of third battalions, and of the first battalion of the Landwehr (Militia) being 2 added to each regiment	111,456
Levying of a third battalion to each of the 15 Hungarian and Transsylvanian regiments	19,620
Levying of two companies from the 2d battalion of Landwehr, for escorts, &c., added to the 43 regiments 86 companies	15,480
	175,796
And afterwards,	
Levy of the Reserve of the Frontier Troops	30,000
The Hungarian Insurrection (Fencibles)	23,000
The two remaining companies of the 2d battalions of Landwehr	15,480
	244,276
Add the peace establishment	196,377
Infantry on the full war establishment	410,653
In the Cavalry, the Hungarian Insurrection, about	10,744

Supposing, therefore, that no augmentations be made to the other corps in the service, the disposable force of the empire, when carried to its full war complement, amounts to 440,653 infantry, 55,714 cavalry, and 30,857 artillery, engineers, &c., which give a total of 527,224 men, which is at the rate of about 15 in every 1000 inhabitants; whilst for the peace establishment the proportion is under 6 in every 1000; a proportion much less than that of France at the present day, which is about 9½ in every 1000 inhabitants, but more than that of Great Britain, which, including even sailors and marines, is very little above 5 in every 1000.

All the regiments but the Hungarian and Transsylvanian have a district assigned to them of from 307,000 to 578,000 inhabitants, for filling up vacancies in their ranks; every male peasant and citizen being liable to serve in the line from the age of 19 to that of 27, and from the latter age until he attains that of 50, in the Landwehr; the only exemptions made are in favour of the nobility and clergy, and in a few other instances. The Hungarian and Transsylvanian troops are recruited by bounty, or filled up by the contingents to which the nobility and free towns are subject. The number of field-officers, attached and unattached, is 646; viz., 8 field-marshals, 34 field-masters-general and generals of cavalry, 96 field-marshals-lieutenant, 199 major-generals, and 309 colonels.

The military seminaries comprise the Academy of Engineers in Vienna, in which 79 cadets are gratuitously educated; the Military Academy at Wiener-Neustadt for 447 cadets intended to serve on the quarter-master-general's staff; the Military Academy at Waitzen in the circle of Pesth in Hungary; the Cadet Companies at Olmütz and Grätz, each for 124 to 130 pupils; the Schools of Artillery; and the Military Cadet Institution at Milan; there are besides 48 schools for the military education of boys; 54 regimental schools; a Military Geographical Institution at Milan; a Medico-Chirurgical Academy in Vienna for pupils intended for the army service; veterinary schools in the same metropolis, and at Pesth and Milan; and an establishment for forming gunmakers at Steyer in the Upper Ens. There are invalid hospitals in Vienna, Prague (with which three branch establishments are connected), Pettau in Styria, and Pesth, with branches at Leopoldstadt and Tyrnau. Soldiers not wholly disabled are drafted into the invalid battalion at Ceneda in the delegation of Venice, or enjoy pensions which vary according to their length of service. The number of actual fortresses amounts to 26, of which the most important are, Arad, Brod, Cattaro, Essek, Gradisca, Josephstadt, Carlsburg, Königingratz, Komorn, Legnago, Mantua, Olmütz, Palma-Nuova, Peschiera, Prague, Petervardein, Ragusa, Salzburg, Temesvar, Theresienstadt, Venice, and Zara. The Austrian government have also the right of garrisoning the papal fortresses of Commachio and Ferrara, as well as Placentia in the principality of Parma, and Mayence in conjunction with Prussia. Besides these there are 60 fortified places of inferior strength, which are not under governors but local commandants. The whole territory is divided into 13 military districts, each under the control of a general of superior rank, assisted by a regular establishment with five subordinate departments, viz., a military, political, economical, victualling and clothing, and judicial department. The establishment of the council at war in Vienna consists of 15 different departments for conducting the various branches which come within its cognizance.

The Austrian navy is under the management of a naval commandant at Venice, who is accountable to the council of war. It consists of between thirty and thirty-four vessels of war; among which are three ships of the line in ordinary, five frigates, five sloops, eight brigs, and six schooners. The establishments attached to it are a corps of naval artillery and engineers, a cadet academy, and a corps of marines. The flag, which is borne also by the merchant vessels, is of a red ground, with a broad white stripe in the centre.

In a preceding page we have spoken of the Roman Catholic as the established religion, and given an estimate of the numbers who adhere to that faith and the other leading creeds professed by the people of Austria. With the exception of Hungary, Transsylvania, and the kingdom of Lombardy and Venice, there is no part of the empire in which at least the letter of the law places the nonconformist upon anything like an equality of rights with the Catholic: in the other provinces, whether he be Protestant, Greek, Jew, or Infidel, the nonconformist simply enjoys toleration. The Roman Catholic Church of Austria acknowledges the Bishop of Rome as its visible head, but is otherwise sufficiently independent of it, as all appeals to the Rota Romano are prohibited, and no papal bull or decretal can be promulged without the previous sanction of the sovereign. The pope's nuncio is recognized in no other character but as an ordinary envoy from his court; nor have the horrors of the Inquisition at any time been allowed to disgrace the Austrian soil. Persecution, it is true, has at times deluged the land with blood, but never otherwise than as the effect of over-excited religious antipathy and a spirit of retaliation. At the head of the hierarchy are the thirteen archbishops of Vienna, Prague (primate of Bohemia), Olmütz, Milan (primate of Lombardy), Venice (patriarch and at the same time primate of Dalmatia), Gran (primate of Hungary and hereditary legate from the Roman see), Erlau and Kolocza (for the states of Hungary), Lemberg, Spalatro, Ragusa, Salzburg, and Udina (for the kingdom of Lombardy and Venice). The Armenians united with the national church have also an archbishop at Lemberg. Next to these its heads follow the sixty bishops, most of whom are suffragans of the archbishops, to whose sees their dioceses are generally subordinate. The remainder of the secular clergy consists of twelve titular bishops, the members of the diocesan chapters, six heads of collegiate endowments, archpriests, deans, rural deans, parish priests, local chaplains, co-operators and vicars, and beneficed ministers. The higher clergy enjoy in general very handsome incomes, their benefices yielding them between 1000*l.* and 10,000*l.* per annum, and in some cases considerably more; as in that of the archbishop-primate of Hungary, whose revenues are

above 34,000*l.* a year. The bishops are prohibited from resorting for their anointment and inauguration to Rome; and pay only one-fourth instead of a whole year's income as the price of their benedictory bull from the pontiff. The whole clergy are liable in common with their fellow-citizens to rates and taxes, and subject to temporal jurisdiction; and all rights of sanctuary have been abolished. The value of the property belonging to the national church is estimated at 19,000,000*l.* sterling.—The regular clergy and their establishments, independently of the members of the Teutonic, Maltese, and star and cross orders, are constituted of 261 abbots, and 184 priors, Hungary alone possessing 147 of the former, and 106 of the latter; 8 endowments for dames, and 6 for noble spinsters; 520 monasteries, and 110 nunneries, besides 14 religious establishments of the order of St. Basil for the Greeks in union, and 2 of Mecharists for the Armenians in union with the national church. The members of these institutions are at present required to employ themselves on some work of temporal or spiritual usefulness, such as the cure of souls, education, attendance on the sick, &c.; and we may cite as an instance, that the order of Charitable Brothers alone had, in the year 1828, admitted no less than 18,542 patients into the 75 hospitals under their care. The order of Jesuits has been restored of late years, but subjected to the control of the diocesan bishops, and restricted in its functions to the education of the younger laity. Six years ago they had four colleges in Galicia, and one in Grätz. From time to time, however, such religious communities as are positively useless or inactive are suppressed, and their funds are appropriated to benevolent purposes. In conclusion, we should add, that Liechtenstern computes the number of males attached to the secular and regular clergy in Austria to be 56,000, and states them to be proportionably most numerous in the Italian provinces.

The united or Catholic Greek Church has one archbishop at Lemberg, and five bishops, namely, at Premszyl, Munkacs, Grossvardein, Kreuz, and Blasendorf; four vicariates and sixty-five archdeaconries in Transsylvania, 2467 cures of souls in Galicia, and 787 in Hungary. The primitive Greek Church is under the superintendence of its own archbishop, who resides at Carlovitz, and presides over the supreme court of appeal for the members of his communion in that town; he has ten bishops under him, whose sees are Arad, Pakraz, Ofen, Versez, Bacs, Transsylvania (residence at Hermaunstadt), the Buckowine (residence at Czernovitz), Dalmatia (at Sebenico), Carlstadt, and Temesvar. These prelates have been latterly admitted to seats in the Hungarian legislature. The members of this church appear to be on the increase, at least in Hungary, where it possesses 2092 cures of souls: in Transsylvania, it has 991; and in the Military-Frontier districts, 374. The regular and secular clergy are in number about 6000.

The rights and liberties of the Protestant Church are founded on the edict of toleration promulgated by the Emperor Joseph in 1784, confirmed by his successor Leopold II., and solemnly recognized by the present emperor. This edict entitles the Protestant to the full and free enjoyment of his tenets and private religious practices throughout the Austrian dominions; but no place of worship can be opened unless the congregation be composed of 100 families at the least. The members both of the Lutheran and Reformed-Lutheran persuasion in the German and Galician provinces are under the jurisdiction of the joint-consistory in Vienna, to which the five Lutheran superintendencies and the four superintendencies of the Reformed Church are subordinate; there are likewise four independent superintendencies for each persuasion in Hungary, and one for the Lutheran in Transsylvania. There are 806 cures of souls of the Lutheran Church, of which 451 in Hungary, and 286 in Transsylvania; and 2035 of the Reformed, of which 1384 in Hungary, and 587 in Transsylvania. The cause of so overwhelming a proportion of Protestants being found in these two provinces is to be traced to the extended immunities granted to the Hungarian Protestants by Leopold II., and the unlimited freedom of conscience and worship, as well as enlargement of civil rights, conferred upon the Protestants by the states of Transsylvania at an earlier period. These countries, be it observed, are the only portions of the empire which possess constitutional legislatures. The total number of the ministers of both communions is estimated at 8400. The Unitarians of Transsylvania are the only members of that creed in Austria; they enjoy a community of privileges with other Protestants in that principality; have a consistory, general synod, and superintendency at Klausenburg, and 164 places of worship. The Jews are mostly of the Talmud sect; the minority, of the Karaitish: they have in Galicia 294 synagogues, a species of college at Brody, and a seminary for Hebrew teachers at Lemberg; in Hungary forty-two synagogues, in Moravia fifty-two, and in Bohemia fifty-nine, besides a seminary and twenty-one schools.

As to *education*, there are three head 'boards of studies;' one at Vienna, for superintending and controlling whatever concerns the business of education in every province but Hungary and Transsylvania; a second at Ofen for the former; and a third at Klausenburg for the latter principality, which also takes cognizance of all ecclesiastical affairs. The various provincial authorities, in conjunction with the clergy and consistories, act under the immediate sanction or directions of these boards. The same system obtains with regard to the Greek and Protestant schools, though it will be conceived that the state of the latter is not likely to have been improved by subjecting them to the visitation of Roman Catholic deans and episcopal consistories. A director is appointed for every branch of instruction to every province and academical district, and he is assisted by a pro director in matters of external, and by an exhortator in matters of religious discipline. In the universities, both are entrusted to their own magistracy. The lower class of schools are subject to the inspection of the local clergy at each spot, but that of whole districts is vested in the dean or vice-dean appointed by the bishop: and the general superintendence and conduct of all matters connected with education is in each province carried on by its own local government. The several descriptions of schools are as follows:—1. national schools, which exist in every place where there is a parish registry, and are open to all ages; and head schools, each of three classes for pupils, in most cities and market towns, for educating youth intended for handicrafts, mechanical employments, &c. There are normal schools of four classes each for educating teachers; and civic schools for the acquisition of practical knowledge, with three classes in each, to which youth intended for the higher branches of the arts, commerce, the station of surveyors, &c. resort. Independently of Hungary and Transsylvania, the whole number of national schools is 24,931, and they are attended by 1,993,522 pupils; they are conducted by 33,053 masters and teachers, being on an average about one to every sixty pupils, whilst the pupils in these schools alone are, relatively to the whole population of Austria, excepting always the two provinces before mentioned, in the proportion of one in about every ten inhabitants. The only certain information we possess on the subject of the national schools in Hungary is, that in the second decennium of the present century they did not amount to more than 5505; but that at this moment no village which can afford to pay a master is without one. Besides these schools, the asylums for the blind and deaf and dumb in Vienna, Prague, Milan, and four other towns, educate about 300 poor children.

2. The Classical Schools consist of gymnasia or grammar schools, including ordinary land-gymnasia of five, and Lycæa and university-gymnasia of six classes. The latter, in the larger towns in Hungary, are termed archi-gymnasia. The number of these schools is 237, of which there are 93 in Hungary alone; the remaining 154, spread through the other provinces of the empire, are conducted by 884 masters and teachers, and frequented by about 28,900 pupils. Most of these gymnasia are in the hands of the members of the Piarist order of monks, or 'Patres scholarum piarum,' particularly as respects Hungary and Transsylvania. Many have laymen as professors, but no foreigner is admitted to teach; and the Benedictine, Franciscan, and other monastic fraternities in various parts also supply teachers to them. All are bound down to a certain prescribed system of instruction; and the greater portion of the books used in them is furnished by the patented Book Depository of St. Anna in Vienna. The schools are supported by the pupils' fees, endowments, grants from ecclesiastical and other sources, and public aids, in the way principally of stipends for poor scholars. The higher class of studies is open in the nine Austrian Universities established in Vienna, Prague, Padua, Pavia, Olmütz, Lemberg, Pesth, Innsbruck, and Grätz. Philosophy and divinity likewise form branches of instruction in several of the Lycea. On the whole, the former is taught in 54 establishments, and by 334 professors, to about 7300 students; and divinity

in 55, inclusive of episcopal and monastic seminaries, by 324 teachers to about 5900 students. The students in law, of which there are 57 professors, amount to about 3200; and the students in medicine and surgery, for which there are schools in Linz, Salzburg, Laybach, Klagenfurt, Milan, Triest, Zara, and Czernowitz, besides those at the universities, amount to about 4300, to whom instruction is given by 149 teachers.

3. Special Institutions are also established for particular branches of knowledge and separate classes of the community. Such are the Polytechnic School in Vienna, with about 750 students; the Technical Institute in Prague, with about 400; the Joanneum or Technical Institute at Grätz, with 250; the various medical and other schools for the military, as already enumerated; the Equestrian Academy in Vienna; the Imperial Academy of Eastern languages in the same capital; the school for the Greek language at Milan; the Imperial Mining Academy at Schemnitz; the Agricultural Seminary at Ungrisch-Altenburg; the Nautical School at Triest, &c. There are academies of the fine arts in Vienna, Prague, Venice, and Milan; and conservatories of music in the same as well as other towns. The number of societies for the promotion of the arts and sciences and agriculture in various parts of the empire, is 33; amongst them we particularly notice the Imperial Institute for Science, Literature, and the Fine Arts, at Milan, with sections at Padua, Venice, and Verona; the Society of Agriculture in Vienna; the Imperial Societies of Art and Science, and of National Economy, in Prague; the Society of Husbandry at Gratz; and the Society for promoting Agriculture and other national objects in Moravia and Silesia.

The greater part of these institutions are well supplied with libraries and scientific collections. Of public libraries there is no deficiency: those most deserving of mention are the Imperial Library at Vienna, consisting of 350,000 volumes, and the University Libraries of 130,000 in the same capital, and of 100,000 in Prague; the Ambrosian, of 90,000, and that belonging to the college of Brera of 80,000, in Milan; the libraries at Brescia, Venice, Grätz, and Mantua, and of the Theresianum in Vienna, of about 70,000 volumes each; and the Pesth University Library of about 100,000. The number of museums and cabinets of science and the fine arts, both public and private, is very considerable; they abound more particularly in Vienna, Milan, Venice, Prague, and Pesth. Of the 23 botanical gardens in Austria, 10 are in Vienna or its vicinity; and that at Padua, which was established in 1533, is said to be the oldest. The 9 Austrian observatories are those of Vienna, Milan, Padua, Grätz, Karlsburg, Erlau, Kremsmünster, Ofen, and Prague.

The liberty of the press is restricted by a censorship, which is intrusted to the police department, and officially confined to the prohibition of such publications, or articles in journals, as may be deemed injurious to the security of the state or of individuals. It is illegal for any subject of the crown of Austria to print a work not previously examined by the censors in foreign parts: the very title of a book requires an official sanction; and even such works as have received an *imprimatur* under any preceding reign, require to be approved *de novo* before they can be reprinted. In such a state of the press, the number of political journals is of course as inconsiderable as their character and influence are insignificant. Letters and science constitute, therefore, the great refuge of the reading portion of the Austrian public, and afford employment and support to more than 80 periodical works. We learn from Lichtenstern that the number of authors is above 2300, and that of the yearly publications in Austria about 1000.

The principal seat of the *linen manufacture*, or rather of those productions in which flax and hemp are employed, is Bohemia, Moravia, and Silesia, which furnish the finest articles of this description in Austria, though in diminished quantities as compared with the earlier part of the present century. For variety and goodness of manufacture, the states of Lombardy and Venice deserve to be classed in the next rank to those three provinces. The Tyrol, Hungary, Galicia, and Transsylvania produce scarcely any but the middling and coarser species of linen; nor is there much beyond what is termed house-linen made in the Archduchy, Illyria, or the Military-Frontier districts. Of linen alone, and exclusively of considerable quantities of cambric and similar fine articles, as well as tapes and stockings, it is stated that the average annual quantity manufactured in all Austria, between the years 1824 and 1827, was 108 millions of ells (92,300,000 yards); of cordage, lines, and other twisted articles, 4,800,000 ells (4,100,000 yards); and of yarns and twist, 90,000,000 (76,920,000 yards.) The average value of this particular class of manufactures for the interval between 1820 and 1826, was 4,404,235 gulden (about 418,400*l.*) per annum; and after deducting all linens, &c., imported, about 383,700*l.* or 4,039,387 gulden. The raising and preparation of flax alone in Austria are estimated to give employment to 750,000 individuals, and its native manufactures to yield sufficient not only for domestic use, but for partial exportation.

The largest manufactures of woollens, both cloth and other kinds, are established in Moravia and Bohemia: those in the former province have, it is true, declined in more recent times to the extent of one-third of their former products; but the increase in the manufactures of the latter has, on the other hand, made amends for this decline. These products in both countries are said to be as much distinguished for their excellence as their variety. In the other parts of the empire, where this branch of industry is proportionably pushed to a much less extent, the principal articles manufactured are of middling and coarse quality, whilst the finer sorts, so far as their domestic consumption requires it, are of Moravian and Bohemian fabric. Considerable quantities of the latter are exported to foreign parts. Kees, indeed, tells us, that the exports of woollens from those provinces had increased, between 1820 and 1826, from 12,900 cwt. in quantity, and 8,631,500 gulden (about 820,000*l.*) in value, to 22,580 cwt. in quantity, and 16,449,500 gulden (about 1,562,703*l.*) in value; whilst the imports into them of foreign woollens had fallen from 84,516 gulden (about 8030*l.*), to as little as 3700 (about 350*l.*) The woollen manufacture employs at least 320,000 Austrian hands; and the crown has given no small impulse to it by erecting several establishments, conducted at its own expense, among which that at Linz, which employs 10,000 spinners and weavers, is peculiarly deserving of mention on account of the beautiful cloth, carpets, &c., which it produces. Brünn, in Moravia, is a Leeds on a minor scale; and Reichenberg, in Bohemia, promises hereafter to become its rival.

The silk manufactures have been rapidly extending in Austria since the introduction of the late celebrated M. Jacquart's machinery. They are principally carried on in the province of the Lower Ens, at Vienna, and in other parts, where above 600 establishments furnish occupation to between 150,000 and 170,000 workmen; and in the Milanese and Venetian territories, where the spinners and manufacturers of Milan, Bergamo, Vicenza, Venice, Bassano, &c., employ upwards of 100,000 hands. In the Tyrol also, particularly at Roveredo, the silk manufactures are of considerable importance; and there have been times when this province has turned above three millions sterling in them during the year. They are spreading likewise in Hungary, Bohemia, Moravia, Styria, and other quarters. Two years ago it was computed that the silk manufacturers of Austria consumed nearly nine million pounds weight of raw material, the whole of native growth; and that the weight and value of the silk exported to foreign markets were 2,600,000 lbs., and 1,100,000*l.* respectively.

What has been said of the prosperity of the preceding branch of industry will not apply, we are informed, to the cotton manufactures. Those concerned in them have not yet been able to meet, by the cheapness of their fabrics, the low prices of the English makers. Hence the Austrian establishments, if not in a course of positive decay, are in a stagnant and precarious state. The Lower Ens is peculiarly the seat of this manufacture, whether for spinning, weaving, knitting, or printing. Vienna takes the lead in the choicer description of cotton cloths, such as muslins, fine prints, &c.; and the whole province, some few years since, possessed above 3000 manufactories, large and small. Cotton-printing is the principal branch carried on in the Upper Ens. Bohemia has likewise considerable spinneries and cotton manufactories, particularly in the circles of Leitmeritz and Elbogen; they exist to a much more limited extent in Moravia, the Tyrol, Lombardy and Venice, and other provinces. In fact, the whole yearly produce of the cotton manufactures of Austria, which are estimated to find employment for upwards of 400,000 hands, is not sufficient to supply the domestic consumption.

The province of the Lower Ens, again, takes the lead in the manufacture of leather, of which the best qualities are made in Vienna. The Upper Ens, Moravia, Styria, Bohe-

mia, and the Tyrol rank next in importance. Hungary abounds in tanneries; and in fact nearly every province in Austria is engaged more or less in this branch, though its produce has hitherto proved so inadequate to the demand, as to render a considerable importation of the raw material necessary. In 1825 this importation amounted to 2,100,000 gulden (about 200,000*l.*).

In a former page we gave some details on the subject of the raw iron raised in various parts of the empire. The article, in a cast state, is principally supplied by Bohemia, where there are seventy-nine iron-works; Styria, where the government possess works near Mariazell, in which iron cannon are cast; Hungary, Illyria, and the Buckowine. Iron and steel, in bars and sheets, both rolled and hammered, are produced in largest quantities in the Lower Ens, where between 600 and 700 tons of remarkably fine quality, besides the coarser descriptions, are annually made; Styria, Carinthia, and Bohemia are also considerable manufacturers of the article; and here and there an iron-work may be met with in Moravia, the Upper Ens, and at Milan, Treviso, and Dongo, in the kingdom of Lombardy and Venice. Iron and steel wire are made in most provinces, but more particularly in the Archduchy. Manufactories of nails are numerous; the best are made in Styria, Carinthia, the Archduchy, and Bohemia. Of the manufacture of arms it will almost be sufficient to say, it is so abundant, that many works are thrown out of employ in time of peace. The crown-works for the supply of swords and muskets are principally situated in Vienna, at Murzsteig in Styria, and Hradeck in Hungary. In short, the numberless articles into which this most useful of all metals is converted are produced in such quantities by the Austrian manufacturers, that a surplus constantly remains for the partial supply of other countries.

The manufacture of copper, both in sheets and other forms, is most extensively carried on at the crown-works near Cslikowa, in the Hungarian Bannat, and two other large works in Hungary; in Bohemia, the Archduchy, Styria, and the Tyrol. That of brass and brass-ware is principally established on the same spots. Achenrain, in Hungary, has a cannon foundry, and that kingdom abounds in button manufactories. Tin is the produce of Bohemia only; and lead is raised or most extensively made into sheets and other customary forms and articles in Vienna, and in the provinces of Carinthia, Hungary, Galicia, and Transsylvania. The principal manufactories of balls and shot are in Vienna and Chioggia, and in the province of Carinthia. In the manipulation of gold and silver, no manufacturers in Austria excel those of Vienna, Prague, Pesth, Milan, and Venice.

Among the other productions of this monarchy, we may notice that tobacco is a monopoly engrossed by the department of finance in every province but Hungary, Transsylvania, and the Tyrol; and that the manufactured article produced in the eight government works (at Milan, Venice, Ragusa, Haimburg, Sedletz, Göding, Winiki, and Fürstenfeld) amounts to between 180,000 and 220,000 cwt. per annum, employs about 5000 individuals, and we are told that, in 1830, the quantity sold produced a profit of more than ten millions of florins, or about 980,000*l.* There are private manufactories in the three provinces to which this monopoly does not extend. Of seed-oil, though the produce is very considerable in all quarters, enough is not manufactured for the consumption; the deficiency is therefore made good by importation to the extent of 280,000*l.* or 300,000*l.* a-year. Large quantities of olive-oil also are obtained from the territories of Lombardy and Venice, particularly the neighbourhood of the Lago di Garda, Illyria, and Dalmatia. The manufacture of paper employs upwards of 400 mills, of which Bohemia possesses above 100, and Lombardy and Venice above 150, but the supply is said not to be equal to the demand: this must be apparent when it is added that the estimated value of the supply does not exceed 2,000,000 gulden, or about 190,000*l.* The number of glass-works is above 200, and of looking-glass manufactories 12; the quality of the latter article produced in Bohemia is considered equal to the finest made in any other country. The exports of glass vary from 210,000*l.* to 230,000*l.* per annum. In conclusion, we shall add, on Lichtenstern's authority, adopted both by Stein and Malchus, that the number of manufacturers employed in working up the native produce of Austria, or the raw materials imported from other countries, is estimated at 2,365,000, and the yearly value of their productions at 1425 millions of silver currency, representing a sum in British sterling of upwards of 140 millions.

With respect to external trade, no country of equal extent is perhaps more disadvantageously situated; its line of sea-coast is comparatively inconsiderable, and, with the solitary exceptions of the Po and Adige, its finest streams, such, for instance, as the Danube and Elbe, lie, even when crossing its frontiers, at a considerable distance from the sea. There is another circumstance, too, which cannot fail to operate most prejudicially on its external commerce: the system of administration, which extends over three-fifths of its whole territorial surface, and, what is more to be deplored, over the richest and most productive portions of it (we refer to Hungary, and Lombardy and Venice in particular), deals with them almost as if they were foreign countries. The natural consequence of these several drawbacks is to prevent the Austrian dominions from assuming that rank in their commercial relations with other countries, to which their position in the centre of civilized Europe, the variety, abundance, and excellence of their indigenous product appear to give them so undeniable a claim. Their maritime commerce, which is confined principally to the Mediterranean, centres in the ports of the Adriatic, and does not employ above 20,000 vessels, even including the craft which carry on the coasting trade. The most active of these ports are Venice and Triest, which have been declared free ports, as well as Fiume, the channel of export for the growth and manufacture of Hungary. Besides these, Illyria has some trade in the harbours of Rovigno, Capo d'Istria, and Pola; the Venetian territories in those of Malamocco, Brondolo, and Chioggia; and Dalmatia in these of Ragusa, Cattaro, Zara, Sebenico, Spalatro, &c. We are not otherwise informed of the amount of shipping owned by Austrian subjects in these quarters, than that about ten years ago it was estimated at 5000 vessels, of which 2995 belonged to Dalmatia, and 575 to Istria; and that in 1826 the number of merchant-vessels so owned, between the burdens of 100 and 500 tons, is said to have amounted to 1000. With a view to promote the foreign trade of his dominions, the present emperor has concluded treaties of commerce with Great Britain and the United States. The trade by land or river is most active with reference to Turkey and the German States, but less so with Poland, Russia, Prussia, and Italy; and the amount of all exports from Austria, whether by sea, land, or river, to foreign countries, has been computed to be about 6,000,000*l.*, whilst its imports are estimated at about 5,900,000*l.* per annum. The internal trade, we mean that between one part of the empire and another, is of a far more active description, and the exchange of their varied productions and manufactures is greatly facilitated by the abundance of navigable rivers, and in most parts by good roads. No towns enjoy so large a share of this trade as Vienna, Prague, Pesth, Lemberg, Brody, Botzen, Milan, Brescia, Bergamo, Semlin, and Debreczin.

Blumenbach tells us that a considerable number of vessels is employed in navigating the Danube, many of from 120 to 150 tons, and, below Komorn, even of 400 or 450 tons burthen. The intercourse on the Italian lakes is likewise very considerable; of which he instances that on the Lago di Garda, where more than 400 vessels of the larger size, independently of barks, &c., are actively employed. All articles of domestic produce may be exchanged between province and province upon paying the frontier duties, which are not heavy, and, where not fixed otherwise, are usually equivalent to a moiety of the duties payable on similar articles of foreign production. Among the articles, of which the importation is prohibited, are wines, salt, all woven, knit, and worked manufactures, spurious metals, and certain drugs. The export of ashes, raw flax, and hemp, with the roots attached to them, and of unwrought gold and silver, is prohibited.

In the times immediately succeeding the Christian æra, the Romans advanced from the Alps and invaded that part of the Archduchy of Austria which is at present called the 'Province below the Ens,' in which Vienna itself is situated. But they found here no homogeneous state nor united people to encounter; the land was occupied as separate hunting grounds, the resort of semi-barbarians, among whom the Pannonii, Boii, and Norici occur most frequently in the Roman annals. Over such a race triumph was easy; a state of dependance quickly succeeded to a condition of savage freedom; and the establishment of military colonies on the Danube, as part of the Roman line of defence against the barbarous hordes of the north, was succeeded in the

year 96 by the incorporation of this tract of country with the province of Pannonia. Noricum thenceforward supplied the Roman legions with fierce and hardy soldiers. In the fourth century, when the north poured down its hordes upon the south, the middle regions of the Danube fell a victim to the spoilers who successively crossed them in quest of more alluring prey. The agriculture and industry which, under the sovereignty of civilized Rome, had covered Noricum with towns and villages, gradually disappeared under the successive inroads of Rhadagasius's multitudes, Alaric's Ostrogoths, the Rugii, and the Huns, the last of whom, led by the 'Scourge of God,' at four different periods traversed and devastated Illyria and Noricum. The succeeding century brought rest with it: a new horde of plunderers from the frontiers of China now took possession of Noricum, and converted it into a receptacle for the cattle and the other spoils of which they stripped the adjacent countries. Its name now merged into that of Avaria, and the Asiatics, from whom it was derived, held possession of it until Charlemagne, having been led into these quarters after driving the Hungarians back upon the Raab, in the year 796 reduced the country between that river and the Ens to subjection, and set Margraves over his new conquest, as the 'Oester-reich,' or eastern mark or territory of his empire. We next find it a dependancy of Bavaria, and then in the possession of the counts of Babenberg, one of whom, Count Leopold, made it hereditary in his family in the year 944. Frederic I., after uniting the land above the Ens to his dominions, raised the earldom to the dignity of a duchy: from this time until the year 1246 it remained in the possession of the house of Babenberg, who enlarged it by the acquisition of Styria in 1186. The line becoming extinct by the death of Frederic II., Ottokar, king of Bohemia, took possession of the country, and in 1269 added to it the duchy of Carniola and part of Friul, which fell to him by right of inheritance; but in his struggle to maintain his conquest against Rudolph of Habsburg, emperor of Germany, the latter expelled him from the Austrian territories in 1276, and seven years afterwards invested his son Albert with the sovereignty, as an appendage to the Habsburg possessions. His posterity, in the course of time, extended their dominion over several other states, which they acquired either by marriage, purchase, or inheritance: among these we may mention the Margraviate of Burgau, in Styria, acquired in 1283; Carinthia, in 1331; the Tyrol, in 1363; Triest in 1380; and the Landgraviate of the Breisgau, in Swabia, in 1367. From the middle of the fifteenth century, or, more accurately speaking, from the year 1437, when Albert II. was raised to the dignity of King of the Romans and Emperor of Germany, this high office has been uninterruptedly enjoyed by the Habsburg line of Austrian sovereigns. For a brief interval, during the first half of the fifteenth century, the sceptres of Hungary and Bohemia were wielded by an Austrian prince, Albert V., who married a daughter of the Emperor Sigismund. From this period the influence and power of Austria increased with great rapidity.

In 1477, the marriage of Maximilian I., Frederic III.'s son, with Maria, only daughter of Charles of Burgundy, brought him the valuable accession of Alsace and the Netherlands to his German possessions, which, it should here be observed, had been protected from dismemberment by the establishment of the right of primogeniture at the early date of 1156. The marriage also of his son, Philip the Fair, with Johanna, only daughter of Ferdinand and Isabella of Spain, for a time invested Frederic's grandson, Charles V., with the united sovereignties of Spain and the Indies, the Netherlands, and Austria: but the treaties of separation concluded in 1521 and 1540 dismembered this gigantic monarchy; the Spanish and Netherlands' dominions being retained as a joint possession by Charles, and his Austrian inheritance relinquished in perpetuity to his brother Ferdinand I. and his posterity. The latter, by his union with the daughter of Lewis II. of Hungary, who died without heirs male in 1526, became possessed of her extensive inheritance, which was composed of Hungary, Bohemia, Moravia, Silesia, and Lusatia. The antient possessions of the house of Habsburg in Switzerland had been gradually wrested from it, the signal being given by the confederation formed by Uri, Schwytz, and Unterwalden, in November, 1307; and the thirty years' war stripped it in the middle of the seventeenth century of Alsace and Lusatia. Austria, however, received ample compensation under the treaty of Utrecht in 1713, which united the Netherlands and certain states in Italy to its dominions. The male line of the Habsburg dynasty becoming extinct with the demise of the Emperor Charles VI. in 1740, the sovereignty devolved to Francis I., duke of Lorraine by his marriage with Maria Theresa, Charles's only daughter, and, under the enactment of the Pragmatic Sanction in 1713, his sole heir. From her very accession she was involved in a series of sanguinary struggles by the ambition of Prussia and Bavaria; among their disastrous consequences were the cession of Silesia to Prussia in 1742, and the loss of Parma and other possessions in Italy in 1748. This great princess had the gratification, however, of seeing her husband crowned Emperor of Germany, and was subsequently indemnified for her losses by the acquisition of Galicia and Lodomeria, under the first treaty for the partition of Poland in 1772; a treaty of which she deeply felt the ignominy, and to which the vehement importunity of her ministers ultimately extorted her reluctant signature. The Buckowine was also ceded to her by the Turkish sultan six years afterwards. No additions were made to the Austrian territory by either of her successors, Joseph II. or Leopold II. Francis II., the reigning prince, whose accession took place in 1792, lost the Netherlands and Lombardy in 1797, in exchange for which the treaty of Campo Formio gave him the Venetian territories. The subsequent treaty of Luneville in 1801 did not much affect his dominions, but the peace of Pressburg in 1805 was purchased by the sacrifice of his possessions in Italy, Swabia, and the Tyrol, for which the acquisition of Salzburg was but a poor indemnity: and the treaty of Vienna, four years afterwards, wrested from him in addition not only a considerable portion of Galicia, which fell to Russia, but Carniola, Istria, Salzburg, the lands called the 'Innviertel,' Venice, and other southern provinces. Full restitution was, however, made to him by the provisions of the treaties of Paris in 1814, and of Vienna in the following year. The Breisgau, we should add, became the property of Baden in 1810. The present sovereign declared himself hereditary Emperor of Austria in 1804, and laid down the dignity of Emperor of Germany and King of the Romans two years afterwards. By right of his German possessions—the Archduchy, the Tyrol, Styria, Carinthia, Carniola, Bohemia, Moravia, Austrian-Silesia, and the duchies of Aufschwitz and Zator, which occupy an area of 75,150 square miles (less than one-third of his whole dominions), and contain about 11,550,000 inhabitants—he is a member of the German confederation, entitled to four out of the seventy votes in its full diets, and his representative has the prerogative of presiding over their deliberations. As such member, it is his duty to keep one in every thousand souls of the population of his German dominions in a perfect state of equipment and in marching order, and to supply, in case of public emergency, a first contingent of 94,882 men, as settled by the act of the Confederation in 1818, which entitles that contingent 'the first corps of the confederate army,' or *erstes Heerhaufen*. (For a list of the Austrian sovereigns, see HABSBURG.)

Weights and Measures.—Under this head we have generally to state, that

$90\frac{94}{100}$ pounds	are equal to	112 pounds avoirdup.
80 feet of Vienna	"	83 English feet.
27 ells	"	23 English yards.
1 klafter or fathom	"	6 Engl. ft., $2\frac{7}{10}$ inchs.
$7\frac{3}{100}$ yochs	"	10 acres.
$45\frac{93}{100}$ metzen	"	10 quarters.
4 metzen	"	7 Winchester bushels.
$6\frac{89}{100}$ eimer (or aulms)	"	100 gallons.
$90\frac{1}{3}$ maas	"	$225\frac{73}{100}$ gallons.
1 posting mile of 4000 klaftern	"	$4\frac{71}{100}$ English miles.
1 geographical ditto $3910\frac{1}{3}$	"	$4\frac{61}{100}$ ditto.

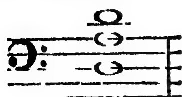
(Von Lichtenstern, *Outlines of the Statistics of the Austrian Empire*, and *Manual of the latest Geography of the Austrian Empire*; Hietzinger's, Demian's, and Rohrer's *Statistics of Austria*; Grüffer's *Manual*; Hassel's *Austria*; Malchus's *States of Europe*; Stein's *Manual of Geog. and Stat.*; Schütz's *Geography*; Blumenbach, Koes, Ridler, Schnabel, Czörnig, &c.)

AUSTRIA, ARCHDUCHY OF. [See ENS, PROVINCES OF THE.]

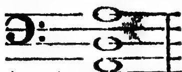
AUTHENTIC, in music, a term used in the antient ecclesiastical modes [see MODES], but utterly unknown in modern music, whether sacred or secular.

Almost every writer on the subject attempts to explain

the word thus:—when the octave is divided harmonically, as in the proportion 6, 4, 3,—that is to say, when the fifth is below and the fourth above, *e.g.*



then the mode is called *authentic*. When the octave is divided arithmetically, in the proportion 4, 3, 2,—that is, when the fifth is above the fourth, *e g.*



the mode is then called *plagal*. [See PLAGAL.]

Dr. Pepusch throws more light on the matter than any writer whom we have consulted. He says, 'When the fugue is in the fifth above or below, or in the fourth above or below, then one of the parts is in the *authentic*, the other in the *plagal* mode of the key we compose in.' Handel's chorus, 'He trusted in God,' in the *Messiah*, may be offered as an example of this, where the subject is in the *authentic* mode, the answer in the *plagal*. But, as we have before observed, the term is now entirely disused, even by writers of fugues and canons, and only introduced here as some aid to those who may encounter it in the old writers on music.

AUTHENTICA, a barbarous Latin version of the Novellæ of Justinian, so called by early writers on the civil law, from its being a literal translation from the original Greek. (See Ducange, *Gloss. ad verbum.*)

AUTO-DE-FE' (Act of Faith), or, as it is commonly termed by foreigners, AUTO-DA-FE', was the public and solemn reading of extracts from the trials promoted by the Inquisition, and of the sentences pronounced by the judges of that tribunal. At this form or act the offenders themselves were present, or in case of their death or unavoidable absence, their bones or effigies were substituted for them: there were also present the civil authorities and corporate bodies of the town where it was performed, particularly the criminal judge, into whose hands the offenders were delivered, that he might inflict upon them the punishment prescribed by the laws; the fire, gallows, and executioners having been previously prepared by order of the inquisitors. When this execution was performed with the highest pomp and ceremony, it was called *auto público general*, general and public act. There was also an *auto particular*, private act, at which the inquisitors and criminal judge only were present; the *autillo*, held in the halls of the Inquisition, in the presence of such persons as the inquisitors invited, and of the ministers of the tribunals alone; and, finally, the *auto singular*, held in the church, or in the public square, against a single individual. The following is the description given by Olmo of the *auto público general* celebrated at Madrid in 1680:—

King Carlos II. having signified his desire to witness and add solemnity by his presence to one of these spectacles, the inquisitor general, who was then Don Diego Sarmiento de Valladares, bishop of Oviedo, knowing that the prisons of Madrid and other places were crowded with culprits, appointed Sunday, the 30th of June, for the celebration of a general auto-de-fé. The king gave orders to provide the necessary funds for the removal of the prisoners to the capital, and for the erection of the amphitheatre. All the authorities and corporate bodies of the town, and likewise the *familiares* and officers of the tribunals, having been invited to attend, a procession was formed, consisting of 150 officers of the tribunal, all mounted on horses richly caparisoned, and accompanied by a military band. With this parade the auto was announced on the 30th of May, first at the door of the inquisitor-general, next before the king's palace, and afterwards in all the public places of the metropolis, in the following manner:—'The inhabitants of the town of Madrid are hereby informed that the holy office of the Inquisition of the city and kingdom of Toledo will celebrate a general auto-de-fé on Sunday the 30th of June of the present year, and that all those who shall in any way contribute towards the promotion of, or be present at, the said auto, will be made partakers of all the spiritual graces granted by the Roman pontiff.' With this encouragement such energy was exhibited by everybody, that the amphitheatre was begun on the 23d and completed on the 28th of May. Not fewer than fifty master-builders, with their workmen, went to offer their assistance, and laboured incessantly, stopping only the necessary time to take their meals, and joyfully exclaiming in the middle of their work, 'Success to the faith of Jesus Christ! all will be done in due time; and if materials should be wanting, we will pull down our houses to supply what is necessary to accomplish so holy a purpose!' The amphitheatre was erected in the Plaza Mayor, or Great Square, and was 190 feet long, and 100 wide. It was elevated thirteen feet above the level of the square. There were two entrances to it; one on the east side for the grand inquisitor, and another on the north side for the king. Both the balconies for the king and the grand inquisitor were hung with crimson damask, spread with rich carpets, and contained two magnificent thrones. Under the scaffold of the tribunal were eight rooms, some of which were destined as prisons for the culprits, others for dinner and refreshment, one for the preacher, and another for the priest who performed the mass. Under the staircase of the same scaffold were other apartments for the inferior ministers, and where the criminals might take some refreshment in case of their fainting or meeting with any other accident during the ceremony.

On the afternoon of the 28th a troop of the soldiers of the faith proceeded from the tribunal to the Plazuela de Alcala, where the marquis of Ugena, the mayor of Madrid, had caused a number of bundles of wood to be prepared; and every soldier having fixed one bundle on the point of his halbert, they went to the king's palace. The captain of the troop presented the king with a bundle, which he carried on his shield, richly ornamented and decorated with ribands. Carlos having shown it to his queen, returned it to the captain, signifying to him his desire that it should be the first bundle to be put in the *brasero*, or burning-place. The company then proceeded to the brasero, which was built about 300 paces from the gate of Fuencarral, towards the right of the road to the village of that name. The brasero was a piece of masonry, of which the area was sixty feet square: it was elevated seven feet from the ground, and sufficiently capacious to contain conveniently the culprits, the executioners, and the monks appointed to offer the comforts of religion to the victims in their last moments.

On the evening before the day appointed for the auto, the prisoners were removed from the houses of the inquisitors, where they had been placed both for want of room in the prisons of the tribunal, and to keep them separate from one another, to the prison of the Inquisition. There, having separated those who were to suffer the capital punishment, the deacon of the inquisitors, accompanied by several monks, delivered to each of the victims the following address:—'Brother, your process has been examined by persons of great learning and knowledge, and your crimes are so great, and of such a nature, that it has been deemed proper to pronounce sentence of death, in order to punish them. To-morrow you die. Prepare yourself as you ought; for this purpose I leave with you two monks.' A commission of the tribunal was sitting all night to hear the recantations of such of the culprits as might repent and confess.

On the following morning, at seven o'clock, the procession moved from the house of the Inquisition in the following order:—The soldiers of the faith led the march; the cross of the parish, covered with a black veil, and attended by twelve priests in surplices, came next; then followed 120 victims, of whom fifty-five were *relajados*, or condemned to the fire, thirty-four in effigy, and twenty-one in person. Some of the effigies bore in their hands boxes containing the bones of those whom they represented, and others their heretical writings. Of the relajados who appeared in person, twelve had gags in their mouths, and their hands tied. All were accompanied by monks. Next came the officers of the Inquisition, in the midst of whom were two members of the congregation of San Pedro Martir, each bearing a box covered with gold cloth, containing the trials of the culprits; then followed a considerable number of familiares, the greatest part of whom were either grandees or their sons, all on horseback. The general inquisitor, upon a fine bay horse, with trappings of velvet, of violet colour, and accompanied by twelve lacqueys, dressed in livery of the same stuff and colour, closed the procession. A guard of fifty men, dressed in black satin with silver lace, escorted the inquisitor. This guard was commanded by the Marquis of Malpica, who marched at the head of it upon a horse magnificently caparisoned. The procession having reached the

amphitheatre, the criminals were paraded before the king and the royal family. A solemn mass then began, and a sermon was delivered by the preacher of the king. After the sermon, an extract of the process of each culprit and his sentence were read. All these ceremonies lasted till four P.M. One of the secretaries of the Inquisition, called the *secretario del secreto*, then took the relajados by the hand, and delivered them to the civil officer, saying that he delivered the persons of those criminals into the hands of the secular judge, praying him most earnestly to deal mercifully and kindly with them. The victims were accordingly conducted to the brasero, riding upon asses, and preceded by an escort of the soldiers of the faith. Behind them were the civil officers and executioners. The secretary of the Inquisition followed behind the procession, and attended the execution to bear testimony that the sentence had been exactly complied with. When the victims arrived at the brasero, the penitent were strangled and then burnt, and the impenitent were cast into the fire alive. Some of the latter threw themselves boldly into the flames, and it seems that this act of courage produced some favourable impression on the minds of the spectators, for our author endeavours to warn the unconscious against the danger of taking for a proof of valour what was nothing else than a brutal and culpable act of despair. The execution lasted until half after nine on the following morning. In the mean time (that is, after four P.M.) the inquisitor continued the reading of the sentences against the other criminals, and absolved such as had repented. The ceremony ended at nine P.M.

Such is the description given by Olmo, who was an eye-witness, and an officer of the Inquisition, of this horrible festival. In the different autos-de-fé which have been celebrated in Spain, from the first which took place at Seville in 1481, to the abolition of the tribunal by the cortes in 1813, no less than 341,021 victims have suffered various punishments. The last auto, according to Llorente, was the *auto singular*, celebrated in December, 1815, at Mexico, against a certain ecclesiastic named Morellos, accused of heresy. He was absolved from the charge of heresy, but was afterwards hung by order of the viceroy for high treason, as being concerned in a plot to effect the emancipation of Mexico from Spain.

(See Olmo, *Relacion del Auto General de Fé, celebrado en Madrid*, en 1680; Llorente, *Historia Critica de la Inquisicion*.)

AUTOGRAPH, from the Greek αὐτόγραφον, *written with one's own hand*, an original manuscript; the handwriting of any person.

This word, in relation to manuscripts, is used in opposition to an apograph, or *copy*.

Collections of autographs, as the handwritings of individual persons, had their origin about the middle of the sixteenth century in Germany, where the gentry, and especially persons who travelled, carried about with them *white-paper* books, to obtain and preserve in them the signatures of persons of eminence, or new acquaintance; whence such a book received most generally the name of *Album*; though it was sometimes called '*Hortus*,' or '*Thesaurus Amicorum*.' Persons who travelled, it is to be observed, showed, by such means, what sort of company they had kept. (See the facts mentioned in Izaak Walton's *Life of Sir Henry Wotton*, Reliq. Wotton. edit. 1651; and Wanley's *Account of the Harleian MS.* 933, *in his Catalogue*.) These albums are frequently found in the manuscript libraries of Europe. Several are preserved in the British Museum, and some are adorned with splendid illuminations. The oldest (MS. Sloan. 851) bears a date as early as 1578, and appears to have belonged to a lady: others will be found in the MSS. Sloan. 2035, 2360, 2597, 3415, 3416. There is one also in the same repository, preserved in the library which belonged to George the Third, evidently made for King Charles the First, with whose and his queen's mottoes and signatures it opens. '1626. Si vis omnia subjicere, subjice te rationi, Carolus, R.' 'En Dieu est mon espérance, Henriette Marie, R.' The other signatures with short sentences, English and foreign, are numerous, all upon paper, but with alternate leaves of vellum, bearing rich illuminations of the arms of the respective parties, inserted. Amongst them are the signature and arms of Charlotte de Tremouille, countess of Derby, afterwards the celebrated defendress of Latham House.

The album of the synod of Dort, A.D. 1618, 1619, is still extant. It was collected by John Dibbezius, or Dibbits, the pastor of the church, and is at present in the possession of Dawson Turner, Esq.

The earliest royal autograph of England, now known, is the small figure of a cross, made by the hand of King William Rufus, in the centre of a charter, by which the manor of Lambeth was granted to the church of Rochester. This charter is preserved amongst those which were bequeathed some years ago to the British Museum by Lord Frederick Campbell. The next royal autograph known is *Le Roy R. E.*, the signature of King Richard II., affixed to two documents, one preserved in the archives of the Tower of London, the other relating to the surrender of Brest, among the Cottonian manuscripts. From his time the royal signatures of England continue in uninterrupted succession.

We sometimes read of the signing of Magna Charta, which really means the sealing: a signature at that period was not the authentic attestation of an instrument, or even of a letter.

D'Israeli, in his second series of *Curiosities of Literature*, vol. ii. p. 207—214, has given a section on 'Autographs,' partly taken from a small volume by a disciple of Lavater, published at Paris in 1816, entitled '*L'Art de juger du Caractère des Hommes sur leurs Ecritures*,' and accompanied by twenty-four plates of illustrations.

It may, perhaps, be true, that nations are distinguished by their writing; and that the vivacity and variableness of the Frenchman, and the delicacy and suppleness of the Italian, are perceptibly distinct from the slowness and strength of pen discoverable in the writing of the German, Dane, and Swede; and that when we are in grief we may not write as we do in joy. Shenstone, in one of his letters said, 'I want to see Mrs. Jago's handwriting, that I may judge of her temper:' and General Paoli told Mr. Northcote that he had decided on the character and dispositions of a man from his letters and the handwriting. But numerous causes must always counteract or obstruct that analogy which many think the handwriting of an individual bears to his character: and none more than that close imitation which the hand of an assiduous scholar is likely to bear to that of his instructor. The form and fashion of Roger Ascham's handwriting is clearly perceptible in the autographs of King Edward the Sixth and Queen Elizabeth.

In later times, collections of autographs have been formed far more extensive than those which the Germans made in the sixteenth and seventeenth centuries. There is one, though of comparatively small extent, in the British Museum, formed by the late Sir William Musgrave; but infinitely larger collections have been made by Dawson Turner, Esq., of Great Yarmouth, and by Mr. Upcott, late of the London Institution. Autographs have an occasional utility, not only beyond the mere amusement afforded to the collector, but beyond the intrinsic interest of their contents as letters or notes: they are often serviceable in verifying the hand-writing of scholars who have been busied in historical researches, or in making collations of, or commenting upon, the antient classics.

The first English work in which a series of fac-similes of autographs appeared, was Sir John Fenn's *Original Letters from the Archives of the Paston Family*, published in 1787; followed by '*British Autography*, a collection of fac-similes of the handwriting of royal and illustrious personages, with their authentic portraits, by John Thane,' 3 vols. 4to. 1789—1791. Another work, more extensive and more correct will be found in *Autographs of Royal, Noble, Learned, and Remarkable Personages, conspicuous in English History, from the Reign of Richard II. to that of Charles II.*, by John Gough Nichols, fol. Lond. 1829; from the preface to which some of the preceding particulars have been derived.

AUTO'LYCUS of Pitane, in Æolia [see ASTRONOMY, p. 531], the earliest of the Greek writers on the Sphere who remain, has left a work Περὶ κινουμένης σφαίρας, *On the Sphere in Motion*, and another Περὶ ἐπιτολῶν καὶ δύσεων, *On Risings and Settings*. He lived about B.C. 300. His works are only worth mention as showing the state of astronomical theory among the Greeks of his time, and are fully described by Delambre in his *Hist. Ast. Anc.*, vol. i., p. 19, &c. The only Greek edition of this author is that of Conr. Rauchfuss (Dasypodius), Strasburg, 1572, containing, besides Autolycus, Theodosius and Barlaam. There is also Forcadel's French translation of Autolycus and Theodosius,

Paris, 1572, a Latin version (anonymous), Rome, 1568, another of Jos. Auria, with the commentary of Maurolycus, Rome, 1587, of the first mentioned work only, and of the second, by the same editor Rome 1588, both together, with scholia, by the same Rome 1591 and the work on the Sphere is in the *Universæ Geometriæ, &c*, *Synopsis* of Mersenne, Paris 1644 There are five manuscripts of Autolycus in the Vatican library

AUTOMATON, derived from two Greek words, meaning *self moved*, is a name generally applied to all machines which are so constructed as to imitate any actions of men or animals Without pretending to describe the mechanical details we shall give some account of the extent to which this amusing species of ingenuity has been carried

We may pass over the pigeon of Archytas the clock of Charlemagne, the automaton made by Albertus Magnus to open his door when any one knocked the speaking head of Roger Bacon the fly of Regiomontanus and several others, not knowing whether their performance may not have been exaggerated They serve to show, however that the idea of applying machinery to imitate life is of very antient date, and that considerable success was not deemed impossible

In the *Memoirs of the Academy of Sciences* for 1729 a description is given of a set of actors representing a pantomime in five acts But previously to this M Camus had described an automaton group which he had constructed for the amusement of Louis XIV, consisting of a coach and horses, &c The coachman smacked his whip and the horses immediately set off moving their legs after the manner of real horses The carriage turned at the edge of the table on which it was placed and when opposite to the king it stopped a page got down and opened the door on which a lady alighted presented a petition with a curtsy and re entered the carriage The page then shut the door the carriage proceeded, and the servant, running after it jumped up behind it (Hutton *Mathematical Recreations* vol ii p 95) This is by no means inconceivable, but is somewhat hard to believe

The flute player of Vaucanson is fully described in the *Enc Méth*, article 'Androide' It was exhibited at Paris in 1738 where it was seen by M D'Alembert who wrote the above article It really *played on the flute* that is projected the air with its lips against the embouchure producing the different octaves by expanding and contracting their opening, forcing more or less air, in the manner of living performers and regulating the tones by its fingers

It commanded three octaves, the fullest scale of the instrument containing several notes of great difficulty to most performers It articulated the notes with the lips Its height was nearly six feet with a pedestal, in which some of the machinery was contained

Two automaton flute players were exhibited in this country some years ago as perfect as the preceding, except (if our memory serves us) in the articulation, which we did not perceive They were of the size of life, and performed ten or twelve duets That they really played the flute we saw proved, by placing the finger on any hole which for the moment was unstopped by the automaton

The automaton trumpeter of Mælzel, the inventor of the metronome exhibited at Vienna is thus described in the *Journal des Modes* for 1809 (We cite from a very useful work, the *Dictionary of Musicians* London Sainsbury and Co 1827) 'From a tent M Maelzel led out a martial figure, in the uniform of a trumpeter of the Austrian dragoon regiment Albert his trumpet being at his mouth After having pressed the figure on the left shoulder, it played not only the Austrian cavalry march and all the signals of that army but also a march and an allegro by Weigl which was accompanied by the whole orchestra After this, the dress of the figure was completely changed into that of a French trumpeter of the guard it then began to play the French cavalry march, all the signals, and lastly a march of Dussek s, and an allegro of Pleyel, accompanied again by the full orchestra The sound of this trumpet is pure and more agreeable than that which the ablest musician could produce from that instrument, because the breath of the man gives the inside of the trumpet a moisture which is prejudicial to the purity of the tone Maelzel publicly wound up his instrument only twice, and this was on the left hip

In 1741, M Vaucanson produced a flageolet player who beat a tambourine with one hand. The flageolet had only three holes, and some notes were made by half-stopping these The force of wind required to produce the lowest note was one ounce, the highest, fifty six pounds (French). Its construction was altogether different from that of the flute player

The same year, M Vaucanson produced a duck, which has been considered as the most ingenious of his performances It dabbled in the water, swam, drank, and quacked like a real duck and the peculiar motions of the animal were very successfully imitated It raised and moved its wings, and dressed its feathers with its bill It extended its neck, took barley from the hand and swallowed it, during which the natural motion of the muscles of the neck was perfectly perceptible It digested the food it had swallowed by means of materials provided for its solution in the stomach The inventor made no secret of the machinery which excited great admiration at the time

Several other automata are described in Hutton s *Mathematical Dictionary*, article 'Automaton in particular, one of M Droz which drew several likenesses of public characters A machine which wrote and drew, and another which performed on the pianoforte, were also exhibited some years ago in London

The celebrated chess player is now usually considered as a solved mystery It is supposed (and has not been denied) that a boy was concealed inside the figure The great difficulty existed only so long as it was imagined that the player was outside the figure nevertheless the machinery by which the hands were regulated must have been ingenious

In looking at the preceding instances, our readers will regret that so much power of invention has been wasted upon trifles What is Vaucanson compared with Arkwright in the estimation of posterity?

AUTONOMIA (Risso) in zoology a genus of long tailed decapod crustaceans found on *Autonomea Olivii*, which is a little more than an inch in length and bears great resemblance in form to *Nika* and *Hippolyte* *Autonomea* lives solitarily in sea weed &c and the female produces red eggs which she carries with her about the middle of summer It is found in the Adriatic Sea and sometimes, but rarely in the neighbourhood of Nice [See NIKA]

AUTUN, a city in France in the department of the Saône et Loire on the river Arroux one of the tributaries of the Loire It is 170 miles S E of Paris, and 65 N N W of Mâcon capital of the department

Autun is one of the most antient cities in France having existed before the Roman conquest under Julius Cæsar It was known under the name of Bibracte and belonged to the Ædui a powerful people in Gaul Cæsar (*de Bell Gall* lib i c 23) speaks of it as by far the greatest and wealthiest town belonging to that people and again (lib vii c 55) as possessing the greatest influence among them It was made a Roman colony under Augustus whose name it took, combining it with the Celtic termination *dun* (a hill) and thus forming the name Augusto dunum, of which the modern name Autun is a corruption It appears to have borne also the names Julia, Polia, and Florentia

In the third century it suffered much from the ravages of war Tetricus one of those aspirants to sovereign power (commonly but erroneously termed 'The Thirty Tyrants'), who rose during the period of weakness consequent on the defeat and captivity of the Emperor Valerianus, and the luxurious carelessness of his son Gallienus having assumed the imperial purple, and extended his dominion over Gaul and over parts of Spain and Britain, besieged Autun, and took it in spite of the vigorous resistance of the inhabitants From the effects of this severe blow the town was raised by the patronage of the emperor Constantius Chlorus and his son Constantine the Great, from whom it received much kindness In gratitude to these princes, whose family name was Flavius the town took the name of Flavia It may be mentioned that some antiquaries have endeavoured to show that Bibracte was identical, not with Augustodunum, but with a mountain several miles from it, called Beuvrai; but D'Anville and others, whose authority we have followed, are decidedly of opinion that Augustodunum and Bibracte were identical, and D'Anville points out the cause of the opposite error in the supposed derivation of the name Beuvrai from Bibracte.

Upon the downfal of the Roman power, the town was reduced to ashes by Attila, king of the Huns, and after-

wards came successively into the hands of the Burgundians and the Franks. In the time of Charles Martel (about A.D. 730), when the Saracens invaded France, they took and burnt Autun, which has never recovered its former eminence*.

The antient town stood on the left or south-east bank of the river Arroux, and at the foot of three hills which now bear the names of *Mont-Dru* or *Drud* (supposed to have been derived from its being a place where druidical assemblies were held), *Mont Jeu* or *Jou* (from a temple of Jupiter upon it), and *Mont-Cenis*. From the last-named of these eminences, which has, like the Mont Cenis of the Alps, a lake on its summit, the town is well supplied with water in every part.

The remains of antiquity are numerous. The circuit of the antient walls may still be traced. They are of considerable extent (between three and a quarter and three and a half English miles, or possibly more), built with great solidity, of stones so well fitted and so nicely joined as to give to the whole the appearance of solid rock. These walls were flanked with a great number of towers, at unequal distances from each other, and are supposed by some to be of earlier date than the Roman Conquest. The space inclosed by the walls was in form approaching to oval, with its longer diameter in the direction from N. to S., and about one mile and a quarter in length. The shorter diameter was about two thirds of the longer one. The number of gates is a disputed point. Some contend for only four, the *Porta Senonica* (gate of Sens), otherwise the *Porta Janualis* (gate of Janus), to the N.W.; the *Porta Lingonensis* (gate of Langres), on the N.E.; the *Porta Cabilonensis* (gate of Châlons), otherwise *Porta Romana* (Roman gate), on the S. or S.E.; and the *Porta Druidum* (gate of the Druids), on the S.W. There were, it is likely, some smaller gates or posterns. Of these gates, the first two remain, viz., the *Porta Senonica*, now called *Porte d'Arroux*, from the river Arroux, close to which it stands; and the *Porta Lingonensis*, now *Porte Saint André*, close to, and indeed partly incorporated with, the church of *St. André*, or St. Andrew. The *Porte D'Arroux*, or gate of the Arroux, through which the traveller from Paris enters Autun, is a kind of triumphal arch built of stone, without any mortar or cement, about 53 feet high and 61 feet broad, having two greater archways for carriages, and two smaller ones for foot passengers. Above these is an entablature, and then a kind of open gallery with seven arches yet remaining of ten which formerly existed. The pilasters which separate these arches are fluted, and are of the Corinthian order. This gallery was never finished on the inner or town side of the gate. The architectural ornaments are elegantly sculptured. The *Porte St. André*, or gate of St. Andrew, is almost as well preserved, and nearly similar to the other, except that the pilasters are of a different order. It had two projections or wings on the outer side, or side of the country, one of which now forms a chapel of the church of St. Andrew: the other has been destroyed. Two main streets ran through the town, one from the gate of Janus to the Roman gate, and the other from the gate of Langres to that of the Druids. On the first of these ways, just within the gate of Janus, was a fine pavement, formed with irregularly-shaped but well fitted blocks of granite, laid on a bed of smaller stones (*cailloutage*). It was destroyed in 1776, because it stopped the passage of the horses which went that way. Some traces of a similar pavement have been observed in other parts of the town. These ways, which led to the main arches of the gates, had footways leading to the smaller side arches. At the intersection of the two main streets was the *Martiale Forum*, which retains some trace of its antient designation in the name *Marchau*. In the neighbourhood of this (where the Abbey of *St. Jean le Grand*, or St. John the Great, was afterwards built), the temple of Cybele is supposed to have stood, and some have thought that the tower, which was common to the abbey and to the parish church of St. John, was part of the temple. It is believed that in the foundation of this abbey there is hidden a stone, a remnant of the square pillars of the Menian schools. On these pillars was engraved an itinerary of the Roman roads leading into Italy, an accompaniment to the chart of the world which adorned the walls of those schools.

A short distance south-east of the town is a singular monument, called *Pierre de Couhard*, or *Couar*. It is a pyramid surmounted by a spherical mass, and is about 42 or 43 feet broad at the base on each side, and about 50 feet high, including the base on which it stands. It has the four corners nearly towards the four cardinal points, and consists of a solid mass of unhewn stones, joined by a very hard whitish cement. Its origin and use are involved in doubt. Some suppose it is a monument of some illustrious Æduan. It is in the midst of what is called *le Champ des Urnes* (the field of urns), from the funeral urns which have been discovered at different times.

There are the ruins of a theatre, and traces of the seats and arena of an amphitheatre, covered with turf, having around and under the seats small dens, the purpose of which is not clearly known. They do not seem to have been for the wild beasts employed in the sports of the Amphitheatre. Not far from the Theatre and Amphitheatre, but without the circuit of the antient walls, is the site of the *naumachia*, a large basin or hollow used for exhibiting the representation of a naval engagement, with the remains of an aqueduct for conveying the water to it. There are, also, the ruins of some temples. One of these, that of Janus, on the other side of the Arroux, appears to have been very magnificent. A marble pavement was discovered within it in 1750, and many gold and silver medals have been dug up in the neighbourhood. Some remains of a rotunda, supposed to be the temple of Pluto, were observed within the last sixty or seventy years, but have now disappeared. They were also beyond the Arroux. Between these two antient monuments the river Tarenai (in Latin *Taranis*) flows. A Roman bridge over this little stream still exists. It first crosses the stream at right angles, having ten semicircular arches of seventeen feet diameter, and piers of about eight feet and a half, and then turns to the right in a direction contrary to that of the stream, having eight smaller semi circular arches of between eleven and twelve feet diameter, with piers of rather more than five feet, to allow a passage to the waters when they overflow the banks. This river runs through the antient Campus Martius of the Æduans, where they held their assemblies. The name of Chaumar or Chamar is still given to the spot.

Of several antient edifices described by the rhetorician Eumenius (who lived in the third century at Autun), there are no traces now left: such as the temple of Hercules, the palace of the Emperors, and the Menian schools (*Scholæ Menianæ* or *Menianæ*), a celebrated college of antient Gaul.† A round building, not far from the supposed site of these schools, is regarded as the remains of antient baths. A square tower, called *Tour de Minerve* (Minerva's Tower), near the gate of the Druids (resembling in some respects that already noticed as having belonged to the Temple of Cybele), is thought to have belonged to a temple of Minerva. Ruins, supposed to be those of a temple of Apollo, stand near the spot, where was the *Porte des Marbres*, Gate of the Marbles (one of the gates of modern Autun, pulled down in 1777). There were several temples within the antient capitol or citadel. The sites or ruins mentioned in this last paragraph are within the circuit of the modern city; but the more important remains, previously noticed, are without it.

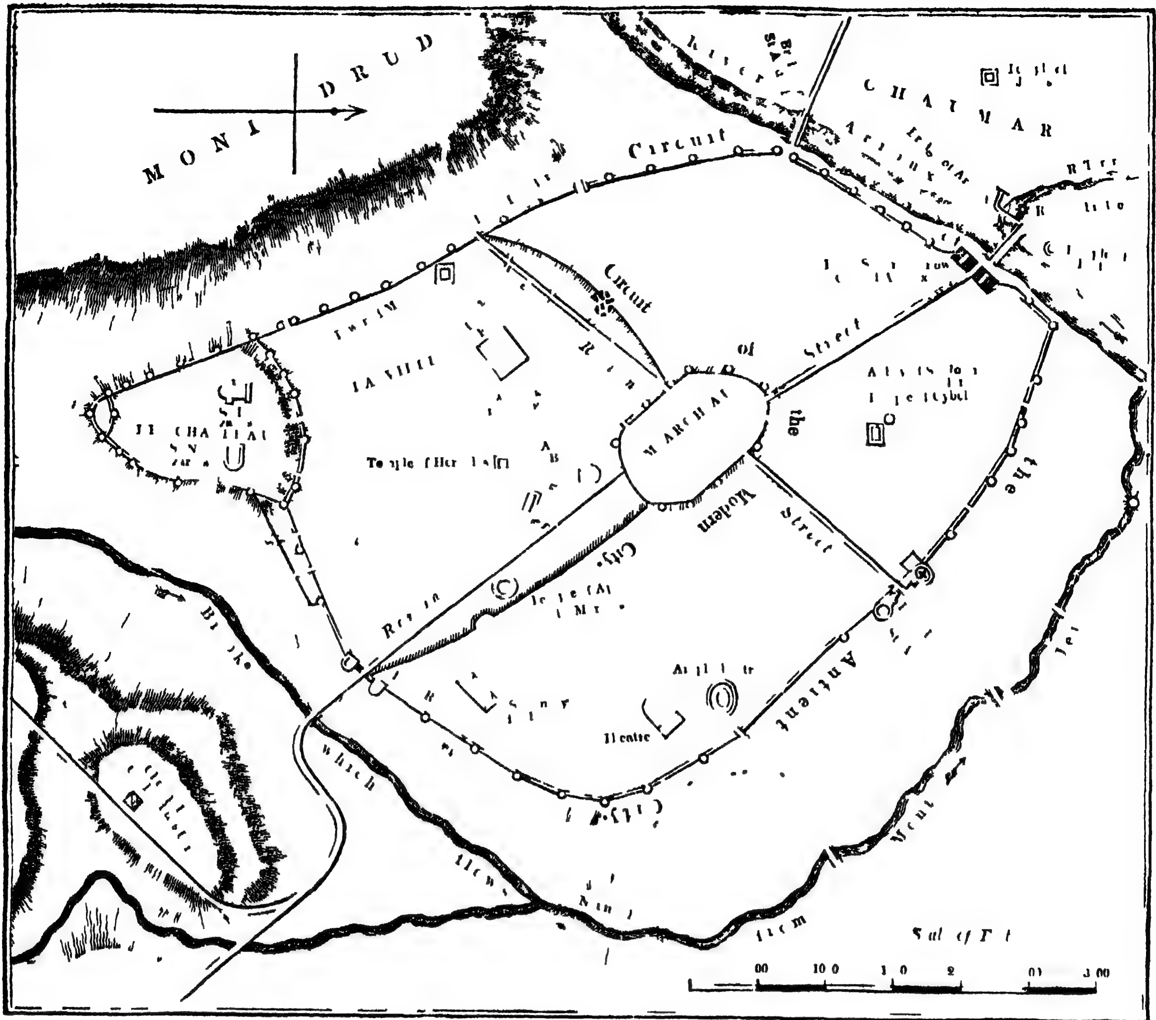
Many remains of antiquity, paintings, statues, medals, &c., have been dug up; but the Autonois are generally reproached with carelessness in collecting and preserving them.

The modern town, as appears from the accompanying plan, is far smaller than the antient one, and occupies the southern part only of its site. It is on the slope of a hill, and from the river a good prospect of it can be obtained, as the houses rise in the form of an amphitheatre. It is divided into three parts, the most elevated of which is termed *Le Château*, the Castle, and is considered to occupy the site of the antient capitol.

The cathedral, dedicated to *St. Lazare*, or Lazarus, was considerably improved in the course of the last century. The choir and chancel are much admired, and the spire was accounted the finest in Burgundy. The side entrance is of modern construction, but in it are preserved four columns, each differently but singularly carved. One represents fir cones, those in one part of the shaft having their

* In Malte Brun's *Annales des Voyages*, vol. xii., the destruction of the city by the Saracens is placed in A.D. 820, and it is added that the Normans pillaged it, and burned the greater part of it in 894.

† That Augustodunum was a place of study for the youth for the Gallic provinces, even as early as the reign of Tiberius, A.D. 21, is mentioned by Tacitus, *Annales*, lib. iii. c. 43.



points directed upwards, those in the other part downwards. A second column is adorned with ribbands and studs, and a third by branches of the vine, twining round it in spiral form, with dependent clusters of grapes. These columns support two arches adorned with medallions, in which the signs of the zodiac are represented alternately with the labours of the year. Nearly all the pilasters in the church have capitals rudely but singularly adorned. The library of the chapter contains some curious and interesting MSS.

This church of *St Lazare* does not appear to have been originally the cathedral, but the bishop and his clergy removed to it upon the destruction of the cathedral of St Nazaire, or Nazarius, until that should be rebuilt. That edifice was, however, never restored, owing to the magnificence and extent of the plan on which the restoration was commenced. The choir alone was finished, and in this the bishop entered upon the possession of his see, so that it was considered to be properly the cathedral. Both these are in the quarter called *Le Chateau*. In front of the cathedral of *St Lazare* is a *place* or square adorned with a handsome fountain. The second quarter, called *La Ville*, (the city,) contains the principal open space (*place*) that of St Lazare, called by corruption *Le Champ de St Ladre*. It is surrounded by good houses, and being planted with trees furnishes the citizens with a promenade close at hand. The third quarter, the *Marchau*, already noticed as the *Martiale Forum* of the antient city, has low ill-built houses and narrow streets.

There are two bridges over the Arroux, one, the *Pont d'Arroux* (Bridge of the Arroux), just by the gate of Arroux described above, is built partly on the foundations of an antient one, which was a little more to the northward. The other bridge, that of St Andoche, is lower down the stream. Before the Revolution, Autun possessed twelve religious houses, and, with its suburbs, was divided into eight parishes. The collegiate church of *Notre Dame*, which was founded, or at least rendered collegiate, by the chancellor Rollin and his wife, in 1444, possesses a painting on wood by Peter of Bruges, which is much admired by connoisseurs. The abbeys of *St Martin* and *St Jean le Grand*, or John the Great, were of considerable magnificence, and that of *St Andoche* was remarkable for the remains of a temple of Diana, which served as the kitchen of the establishment. Two hospitals and two institutions for the instruction of ecclesiastics (*seminaires*) are still among the establishments of Autun, which appears to have owed its importance very much to its episcopal dignity and to the various religious foundations which it contained.

The bishops of Autun held high rank in the church. They were presidents of the order of the clergy in the states of Burgundy, and administrators in spiritual and temporal matters of the archbishopric of Lyon when that see was vacant. They had jurisdiction over part of the city of Autun. At present the diocese comprehends the department of Saone et Loire, and the bishop is a suffragan of the Archbishop of Lyon and Vienne. Talleyrand was bishop of this see when the Revolution broke out.

The trade of the town consists in horses, cattle, wood, and hemp. Serge, cotton velvet, cloth for regimentals, hosiery, and leather, are among its manufactures. To the east of the town are several mills. A fabric called *tapisserie de marchau*, fitted for coverlets of beds, horse cloths, and other purposes, is made in this town. Of this manufacture Autun was, and perhaps still is, the only seat. The population of the commune of Autun on the 1st of January, 1832, was about 10,000, of whom between 8000 and 9000 were in the town.

There are here three libraries, a collection of pictures, statues, and medals, an agricultural society, baths, and a theatre, a *tribunal de commerce*, or committee for deciding mercantile disputes, and a *tribunal de première instance*, or subordinate court of justice, with powers inferior to those of the *cours royales*, or assize courts.

Among the natives of Autun may be mentioned the pre-

sident Jeannin, one of the confidential ministers of Henry IV, though some place his birth at Auxerre. He is buried in the cathedral. Brunehaut, queen of Austrasia, who founded the abbey of *St Martin*, already noticed, was buried in the subterranean chapel of the church of *Nôtre Dame*, but her tomb was removed to the church of the abbey of *St Martin*, and placed near the sacristy or vestry.

Autun is the capital of an arrondissement containing 647 square miles or 414,080 acres, and having a population of between 85,000 and 86,000. The district round the city abounds in a grey granite that is much used for building as well as for paving. A handsome variety of green porphyry is also found, and there are iron and lead mines; potter's clay is also obtained. The country of Autunois was far more extensive than the arrondissement, and comprehended a tract fertile in wheat and rye.

(Malte Brun, *Annales des Voyages*; Millin, *Voyage dans les Départemens du Midi de la France*; *Dictionnaire Universel de la France*; Reichard's *Itinerary*; D'Anville, *Notice de l'Ancienne Gaule*.)

AUVERGNE (Geology of). A considerable portion of Central France is formed of gneiss, mica slate, and other of the inferior stratified rocks, associated with granite. Whether any part of the granite has or has not been protruded through the gneiss and mica slate since their consolidation, is not apparent; but as it seems occasionally to pass into gneiss, which in its turn graduates into mica slate, we may infer that a part at least of the mass of granite was contemporaneous with the inferior stratified rocks of the district. Be this as it may, the beds of gneiss, mica slate, and others of the same class are sometimes highly inclined and contorted, as may be observed near Menat, showing that they have been acted on by some powerful force; but as these beds may have been exposed to the action of many powerful forces during the series of ages which have elapsed since their production, we cannot without better evidence than we possess readily fix on the geological epoch when the gneiss and mica slates were first thrown out of their original positions. As a whole, these rocks constitute a kind of elevated plain, having a mean height, according to Ramond, of about 3200 English feet, and rising at Pierre sur Haute, to an elevation of 5410 feet above the level of the sea.

Above these rocks, which are sometimes termed primitive, or primary, because they are the most ancient with which we are acquainted, we find others that must have been formed at periods separated from each other by considerable intervals of time, since many rocks necessary to complete the series of European deposits are wanting between them. Finally, numerous volcanos, now extinct, poured forth an abundance of igneous products, which, though comparatively recent, have covered the remains of animals that have disappeared from the surface of our planet. The rocks which, in the order of relative antiquity, succeed the inferior stratified and granitic rocks above noticed, are referred from the vegetable remains detected in them to the same age as the coal measures of Great Britain. Their general mineralogical characters are also similar, beds of coal being associated with shales, sandstones, and conglomerates; the whole appears to be the result of drifted vegetable matter, and of detritus from pre-existing rocks, accumulated in unequal quantities and at unequal intervals of time in particular situations. The extent to which these carboniferous rocks once covered the granitic area of Central France cannot be conjectured, owing to the various geological changes to which the surface of the country has been exposed; but we may infer from the general characters of the scattered portions now observed, that the coal measures were once more extensively distributed over Central France than we now find them. The manner in which these carboniferous rocks occur would lead us to suppose that they had been deposited upon an uneven surface of pre-existing rocks, and that the time necessary for the accumulation of the vegetable matter must have been considerable, since the coal-beds, though they vary considerably in this respect, sometimes attain twenty or thirty yards in thickness. As the fossil plants discovered in these deposits do not afford any evidence of distant or violent transport, we may consider that dry land existed in the area now occupied by Central France at the epoch of the carboniferous group.

A long interval of time appears to have elapsed, judging at least from the rocks now found in Auvergne, before any other deposits were formed in this part of the European area. During the various changes to which it has been exposed, rocks may indeed have been produced and have been subsequently removed; but as no traces of such products are now visible, the evidence is in favour of conditions unsuited to the formation of rocks in this district during a considerable geological period, extending from the epoch of the carboniferous group to that of the cretaceous group inclusive. If Central France has been elevated above the general level of the ocean from the time of the coal measures to the present day, as we might infer from the total absence of rocks with marine remains, conditions would necessarily be unfavourable to the production of any abundant equivalents of those thick and numerous deposits of transported matter which occur in various parts of Europe, and which are inferred, from their organic contents, to have been formed in a sea. We should however expect to discover traces of deposits effected in lakes, by the sides of rivers, and in other situations where transported detritus and calcareous matter precipitated from water could find places of rest. Conditions appear, however, to have been unfavourable to any accumulation of such deposits in sufficient abundance to leave traces of their existence until the supracretaceous epoch, when large lakes were filled with detritus and calcareous matter.

The supracretaceous lacustrine deposits of Auvergne may, according to M. Croizet (*Bulletin de la Soc. Géol. de France*, 1833), be divided into three portions:—1. An inferior accumulation of sandstones and red and variegated marls, the former being the lowest. In these are discovered the remains of a quadruped, of a few small reptiles, and the impressions of dicotyledonous plants. 2. A central accumulation of marls, limestones, and gypsum, in which are found the exuviæ of the palæotherium, anoplotherium, anthracotherium, a small pachydermatous creature, the crocodile, tortoise, some small reptiles, and of birds analogous to the genus *Anas*. To which may be added the eggs of birds, sometimes well preserved. 3. A superior deposit of limestone and marl containing an abundance of the Indusia tubulata, Cypris faba, Gyrogonites, Potamides, Helix, &c. The remains of numerous vertebrated animals are discovered in it, among which there are three species of rhinoceros, two ruminants analogous to the genus *Moschus*, animals of the genera *Canis*, *Felis*, &c. The only portion of this mass of deposited matter of which the relative age has been doubted, consists of certain sandstones constituting the base of the whole, and termed *arkose*, a name also given to a rock discovered in a situation intermediate between the lias and the granitic district of Central France, and therefore of much greater antiquity than the lacustrine deposit under consideration. The mere mineral resemblance of the two rocks is of little importance, since they are both formed of detrital matter derived from the granitic district itself, and which has afforded similar silt, sand, and gravel at various geological epochs; so that rocks formed at different periods may be separated from the granitic mass beneath by similar sandstones.

The lakes, for there would appear to have been several, in which this mass of limestone and marl was deposited, must have been deep, since the thickness of the lacustrine formations of Auvergne has been estimated at 800 or 1000 feet in some places. The beds of which it is composed vary from two or three inches to six feet in depth, some of the laminæ being exceedingly thin, and the whole, taken generally, presenting the appearance of slow and tranquil deposition. As the remains of the mammiferous animals, detected in the upper portion, do not correspond with those discovered in the lower part of these beds, we may infer that a considerable change in the terrestrial animal life of the district was effected even during the time that the various deposits were made in the same lakes.

Subsequently to the production of the greater proportion of the lacustrine rocks noticed above, the surface of the country was broken up, and volcanic products ejected in great abundance. In the Cantal, which for the sake of greater clearness we shall consider as part of Auvergne, though geologists have been in the habit of separating them, there is no evidence yet adduced to show that any portion of the lacustrine rocks was produced after the volcanic eruptions commenced; it is otherwise, however, with the northern part of the district, for the lacustrine deposits of Limagne had not terminated before the volcanos burst forth in that direction, as may be seen at the hill of

Gergovia, and two or three other places in the vicinity of Clermont.

The volcanic products are extremely various, some appearing like the older rocks melted by heat beneath and thrown up, while others seem to have been derived from matter deeper seated. The two groups of the Cantal and the Monts Dore are remarkable for a certain general resemblance to each other, consisting principally of trachytes and basalt, the former having been, as a whole, first thrown up, dislocating the lacustrine rocks where they opposed their ejection, as may be seen in the Cantal between Aurillac and Murat, particularly from the village of St. Roque to Polminhac. Large fragments of lacustrine limestone (from 40 to 50 feet in diameter) are included among the trachytic conglomerate near Giou. The trachytic rocks of the Cantal have not been produced at a single eruption, but appear to have been formed at distinct intervals of time, judging at least from the repetition of the beds. Dykes of trachytes cut through the principal masses, as may be observed near Lioran and near the source of the Cer, and it is inferred that the trachytic eruptions of the Cantal ceased before the basaltic matter was poured forth, since the trachytic dykes do not traverse the basalt. The latter and its conglomerates cover the trachyte in a nearly continuous mass, broken only by the radiating lines of valley and the central part of the group where the inferior rock are exposed to view. The Plomb du Cantal, which is the highest part of the group, attaining an elevation of 6095 English feet above the sea, is formed of a small patch of basalt. This rock also occurs in dykes traversing the trachytic masses, sometimes spreading out over their upper surfaces; the Puys Violent (5232 feet above the sea) is thus formed; and it is worthy of remark, that the basaltic dykes of this mountain keep a very constant direction from S. 10° E. to N. 10° W. Like the trachytic rocks, the basalts of the Cantal do not appear to have been formed at a single eruption, since they constitute several beds. In the environs of the Puys Violent, and on the flanks of the Vallée du Mars, two beds of basalt are separated by a thick accumulation of basaltic conglomerate, the lowest bed of basalt resting on trachytic tuff. MM. Dufrénoy and Élie de Beaumont (*sur les Groupes du Cantal*, &c., *Annales des Mines*, 1833) consider that the clinkstone at the Puys de Griou and adjacent places is more modern than the trachytes and basalts, and that its eruption forced up these rocks, breaking the whole volcanic group of the Cantal into those radiating valleys we now see, and which diverge from the central part of the group outwards.

The Monts Dore constitute another somewhat circular system of volcanic mountains, about four leagues in diameter, and rising at the Puys de Sancy to the height of 6190 English feet above the sea, the most elevated point of Central France. The trachytic rocks are here also the most antient volcanic products, and occupy the central and largest part of this group of mountains, the basalts skirting the general mass, though they are not strictly confined to the outer portions, patches of basalt occurring among the trachyte of the interior. The whole rests on the granite and other antient crystalline rocks of Auvergne. Trachytic conglomerates alternate with solid trachyte, and the latter is often divided into prisms as beautiful as those of basalt. The upper bed of trachyte is the thickest, and forms the rock beneath the greater part of the pastures of Monts Dore. Veins of trachyte are well seen in the Vallée des Enfers. More modern volcanic action can be traced around the great central mass of these mountains at Montcynaud, and the Puys d'Enfer, and scoriæ extremely fresh are observable at the Puys Vaurmson and the Puys d'Aiguilher.

The great proportion of the more modern volcanos of Auvergne occur in the vicinity of, or at moderate distances from, the town of Clermont. It would far exceed our limits to enter into a detail of the volcanos which are found in this part of Auvergne, and which possess various degrees of interest according to the situations where they occur, and the rocks with which they are associated. Though they are, for the most part, distinguished by craters in different states of preservation, by lava currents, and by accumulations of cinders, ashes, and ejected portions of pre-existing rocks, there are some remarkable for the absence of craters and lava currents, and which seem due to a modification of the more usual volcanic action. Of these, one of the most remarkable is the Puys de Dôme, formed of a particular kind of rock, which has thence been named *domite*. This rock varies much in its appearance; but is generally light grey, and sometimes contains fragments of granite and of the porphyritic trachyte of the Monts Dore (Puys de Dôme, Puys de Sarcouy).

The Pariou may be considered one of the most interesting of the crater-volcanos of the district: it rises to the height of 3986 feet above the level of the sea, and its truncated cone is a remarkable object, even among the other volcanic eminences of the country. The crater is beautifully preserved, and is about 930 yards in circumference, and 93 in depth. The upper part of the mountain rises from another crater, from which the upper cone has evidently been thrown up. The lower crater has been broken down on the side of the Puys de Goules, and a current of lava has issued from it, passing near Orcines, and forming the sheet of volcanic matter on which La Baraque is built. Before it arrived at this point some granite elevations arrested the lava current, and divided it into two unequal streams, the smallest of which passed the point where the village of Durtol now stands and stopped at Nohament. The other stream, after passing La Baraque, and forming the *cheire* (as these sheets of lava are termed in Auvergne) of Villars, descended on the granitic plateau of the country, and flowed on to Fontmore, about half a league from Clermont. The Puys de Louchamps is a more modern volcano, which attains the greatest elevation above the sea, its height being 4170 feet above its level. Nothing can be more exact than the resemblance of these volcanos to those now in activity in other countries. Their presence in Auvergne shows that volcanic action may suddenly commence in any part of the earth's surface where no such action had previously been apparent, and that having caused the ejection of various igneous products, and altering the whole physical character of a country, it may cease for at least long periods of time, and a district not liable to be visited by volcanic eruptions be again raised from their ravages.

During the period that the volcanos of Auvergne were in a state of activity conditions would necessarily be favourable for the production of alluvial deposits, the ashes, cinders, and ejected stones being readily washed down into the valleys, where they would be swept onwards by the rivers, and exposed to still further attrition. In them we should expect to discover some traces of the animals which inhabited the country at this period, and from which we might obtain an insight into the geological date of some of the eruptions themselves. The remains of animals so situated that they must have been entombed in the places where they now occur when the Auvergne volcanos were in activity have been found, and from the kind of remains discovered, volcanic eruptions are supposed to have occurred up to a late part of the supracretaceous period. According to MM. Croizet and Jobert (*Recherches sur les Oss. Foss. du Puys de Dome*), there are, at the Montagne de Perrier (N.W. from Issoire), and in the neighbouring country, about thirty beds above the lacustrine limestone, which may be divided into four alternations of alluvium and basaltic deposits. Three or four beds contain organic remains. The principal ossiferous stratum is about ten feet thick, and can be traced for a considerable distance at the Montagne de Perrier. The remains discovered consisted of elephant, one species; mastodon, one or two; hippopotamus, one; rhinoceros, one; tapir, one; horse, one; bear, one; felis, four or five; hyæna, two; beaver, three; canis, one; castor, one; otter, one; hare, one; water-rat, one; deer, fifteen; and ox, two. The remains are mixed confusedly with each other, and are of all ages, and mingled with them are the fæcal remains of carnivora, appearing to occupy the places where they have been dropped. As, moreover, the bones are never rolled, though frequently broken and often gnawed, the animals whose remains are thus entombed would appear to have been inhabitants of the immediate vicinity of the places where their remains are now found.

The lava currents discharged from the volcanos of Auvergne have sometimes traversed pre-existing valleys, arresting the progress of rivers, the waters of which accumulated into lakes behind the barriers of lava. When these lakes became full, the surplus waters discharged over the dams gradually eroded them, until they formed deep channels for the rivers, and the lakes disappeared. We should anticipate, unless the physical features of a given locality were materially changed during an eruption, that the lowest lip of the brim of such lakes would be in the direction of the pre-existing valleys, and at the junction of

the lava-currents with the opposite sides of such valleys This seems to have been the case with the lava current from the Puys de Come (near Clermont), which flowed into the valley of the Sioule the river having cut a new bed between the lava and the granite on the opposite side of the valley. An example of a deep cut made by a river into the rock over which it flows may also be observed in another part of the same valley, where a lava-current that issued from the Puys Rouge, and barred the progress of the stream, has been cut into a ravine, and an excavation formed in the gneiss beneath to the depth of fifty feet

AUXERRE, a city in France, capital of the department of Yonne, situated on the left or west bank of the river which gives name to the department It is 102 miles S E of Paris by the road through Melun, and 104 through Fontainebleau

Auxerre is mentioned in the later periods of the Roman dominion in Gaul under the name of Autissiodurum Autissiodorum, Autisiodorum, and Autosiduum It was in the country of the Senones, but by a division of that territory acquired a district of its own The line of demarcation between the former dioceses of Sens and Auxerre (now incorporated together) is supposed to have coincided with the frontier of this district The bishopric of Auxerre is said to be as antient as the third century, its first bishop having been St Peregrin who was put to death for his religion in the reign of Aurelian A D 273

After the fall of the Roman Empire in the West the city came under the dominion of the Franks without ever being subject to the Burgundians Under the Carlovingian dynasty the county of Auxerre which was then coextensive with the bishopric was granted by the king of France to the bishops of Auxerre and by these the city of Auxerre was bestowed on the counts of Nevers to hold on condition of fealty and homage to the see After passing through [illegible] the Courtenay and others the county of Auxerre [illegible] at that time as it appears of the city and such part of the former county as had been granted to the counts of Nevers) was sold to the crown of France in the year 1370 It [illegible] ceded by Charles VII to the Duke of Burgundy [illegible] win him over from his alliance with the English but was [illegible] united to the crown by Louis XI However the princes of the house of Austria though they never obtained possession, do not appear ever to have renounced their right to the county as heirs of the family of Burgundy The bishop retained till of late years the only [illegible] of his feudal superiority When he made his solemn entry into his see the king's procureur, as first vassal, assisted in carrying him to the throne

The city stands on the slope of a hill, in a country fruitful in wine, the air is considered very pure It is a fine old place, with many well built houses but with dirty and narrow streets There are two squares (*places*), but both small The cathedral dedicated to St Stephen, stands high and is accounted one of the finest in France It escaped with little damage the violence of the Revolution The portal is magnificent, and there are some fine painted windows The abbey of St Germain was celebrated for its crypts, in which were the bodies of no less than sixty saints, and a "prodigious quantity of holy relics" This sacred spot suffered some violence from the hands of the Calvinists, in the religious wars of France Previous to the Revolution there were fourteen religious houses besides a commandery of the order of Malta two seminaries for the priesthood, and as many hospitals The number of parishes is differently stated at eight (Piganiol de la Force) and twelve (Expilly, *Encyclopédie Méthodique*) One of the churches (Notre Dame) was collegiate The foundling hospital is a large building near the northern entrance of the town The episcopal palace, which is spoken of in high terms by Martinière (*Le Grand Dictionnaire*), Expilly, and others, is said, in the *Encyclopédie Méthodique*, to be only an ordinary residence

Woollen cloths, serges, druggets, stockings, cotton-yarn, and pottery, are made in Auxerre, but it should seem to a trifling extent, the chief trade of the town is in wine, of which it is a considerable mart The navigation of the Yonne commences here, or at least a very little way above, and the wine is sent down the river to Paris and elsewhere by water carriage The wine of Auxerre is generally known by the name of *Petit Vin d'Auxerre*, but two or three spots produce growths of great reputation. The *chablis* (a white wine) and the *côte de la chênette* and *côte de la migraine* (red wines), are made in this neighbourhood. The vintage draws to Auxerre two sorts of dealers from Paris. One class purchase the wine from the grower and remaining on the spot, see the crop gathered put into tubs by the road side, pressed, and put into casks, and immediately sent off to Paris This is said to be the only way to prevent adulteration by the country merchants, who mix with it their old wine or with the strong wines of the south of France, in order to make "more Burgundy" Wines of the most celebrated growths are found to possess, by this process a marvellous faculty of increase those of which only a few small casks are made, even in favourable years, can be had at any inn in France Wood is also a considerable article of trade at Auxerre

There are in this town a library, a museum of natural history, and a collection of philosophical instruments an agricultural society, a high school (*lycée*) of considerable repute, a theatre, and baths Some wealthy wine merchants have collections of antiquities Some medals and coins in these collections show that money was once coined here The population in 1832 was between 11,000 and 12,000

The bishopric of Auxerre appears now to be united to the archbishopric of Sens, to the holder of which see the bishop was formerly suffragan The dignitary now has the title of *Archbishop of Sens and Auxerre*

The town suffered considerably in the middle ages from the hostility of the Huns Normans Saracens and English, and from the religious wars of the sixteenth century The marshal of Chastelux who took Cravant (a small place near Auxerre) from the English and restored it to the chapter of the cathedral, received in perpetuity a canonry for the eldest son of the family They entered upon their office dressed in a curious combination of ecclesiastical and military garments

The arrondissement of Auxerre includes a district of 771 square miles or 493,300 acres, and a population of about 112,000 persons (Malte Brun Piganiol de la Force Martinière *Encyclopédie Méthodique* *Dictionnaire Universel de la France* *Letters from France*, by J M Cobbett, Reichard's *Itinerary of France* Dupin Expilly)

AUXILIARY VERBS are distinguished from other verbs in the following way Verbs express the notions of *action* auxiliary verbs, though they originally expressed notions of action, only express *relations of action* when considered as auxiliary verbs, and are accordingly employed, in connexion with other verbs, to give to them certain relations called by grammarians tense, mood and voice The modern languages of Europe and our own more particularly abound in such forms, but they are likewise found in the languages of Greece and Rome, sometimes altogether undisguised, more commonly so completely blended with the main verb as to pass for a mere arbitrary suffix which the grammarian does not attempt to explain It is in the very nature of a particle which plays a secondary part that it should not occupy too large a share of the attention and thus those verbs which in course of time are used as auxiliaries, though originally as significant as any other verbs, lose something of their distinctive character so that if the fuller form happen to disappear from a language, the corrupted auxiliary presents anomalies which it is not easy for the philologist to explain This difficulty is increased by the circumstance, that verbs used as auxiliaries generally throw off much of the distinctive meaning which they originally possessed

Among the auxiliaries, the most important is the substantive verb signifying *to be*, and, as might be expected, no word has passed through more variations of form Grimm and other grammarians, indeed, have laid down that there are three or even more distinct roots combined in the conjugation of this verb But when allowance is made for the known changes that take place in the letters of the alphabet there will appear, we think, some reason for supposing that all the varying forms of this verb are derived from a common origin

As the ultimate form from which all the rest appear to us to have flowed, we will propose the root *ves* and we are inclined to assign to this root, as its primary meaning, the notion of *eating* Such a form appears in the Latin *vescor* (pronounced wescor), *I eat*, and in the German *wesen, to be* The initial *w*, it is well known sometimes assumes the form of *g*, and hence we have *gegessen, eaten.* Still more commonly the *w* is altogether dropped, and then we have the root *es*, which is the basis of the Greek sub-

stantive verb *es-mi* (the original form), *es-si*, *es-ti* (still existing in this form in the Lithuanian language), of the old Latin verb *es-um*, *es*, *es-t*, *es-umus*, *es-tis*, *es-unt*, *es-to*, *es-se*, and with a slight variation of the Sanscrit *as-mi*, &c. With the same form of the Latin we may connect *es-t*, *he eats*, *es-se*, *to eat*, *es-ca*, *es-culentus*, &c., and the German *ess-en*, *to eat*. After the word had thus been stripped of its initial consonant, the short vowel also was apt to disappear, at least in the longer forms. Thus from the old Latin forms *esum*, *esunt*, *esim*, &c., there arose the shorter forms *sum*, *sunt*, *sim*, &c.; *prae-es-ens*, *ab-es-ens*, were reduced to *praesens*, *absens*; and in German we find *sein*, *to be*, *sind*, *they are*, in place of *es-ein*, *es-ind*.

In the second place, the consonant *s* interchanges with the letter *r* [see AUSONES], so that *were* exists by the side of *was*, and *art*, *are*, with *is*. Thus in the Latin, too, we have *er-am*, *er-o*, where more regular forms would have been *es-am*, *es o*, or rather *es-so*. Again, the same letter *s* is interchangeable with the dentals *t*, *d*. Hence, while the Germans have *ess-en*, *Ich ass*, the English express the same notions by *to eat*, *I ate*; and the Latin tongue uses indifferently *ed-it* or *es-t*, *he eats*, *ed-ere* or *es-se*, *to eat*.

The form *be* is evidently the parent of the German *bin*, *I am*, *bist*, *thou art*, and of the English *be-ing* and *be-en*. With the short vowel changed, it appears in the Lithuanian *bu*, as *bu-ti*, *to be*, *buwau*, *I have been*; and as the latter language is closely allied to the Greek, and other Indo-Germanic tongues, we cannot be surprised at the Greek form *fu-o*, *I beget*, &c. *pe fu-ca*, and *e-fu-n*, *I am*, &c.; whence also the Latin *fu-vi* or *fu-i*, *fu-am*, *fu-turus*, &c. That these forms are all related among themselves is generally allowed; but the question now proposed is, whether they are not also radically connected with the root *wes*. If it could be shown that the root *be* ever existed with an *s* at the end, it would no longer be thought a violent step to suppose a connection between *bes* and *wes*, more especially when we find the *b* already half way towards a *w* in *fui*. In *foetus*, *foecundus*, &c., pronounced probably *fuetus*, &c., we have a still nearer approach to the digamma. Now a strong presumption that the root *be* had a sibilant, arises from the old German form *birumes*, *we are*, compared with *warumes*, *we were*, in the same language (see Grimm). In these words the suffix, which denotes the plural pronoun, cannot claim more than the four letters *umes*, thus agreeing very precisely with the Greek suffix *omes*, the Latin *umus*, and the Lithuanian *ame* of the same power. The radical parts then are *bir* and *war*; and as we know the latter to be connected with the form *was*, there is no slight suspicion that *bir* implies an early form, *bis*. If the Greeks lost the *s* in many of their forms derived from the short root *es*, as they did, and if we ourselves have dropped it from *am*, we can scarcely be surprised at its disappearance from the longer form *bes* or *bis*. The notion that the roots *bes* and *wes* are connected, is confirmed again by the other forms in these languages, which represent the idea of eating. In Greek, we find *bo sco*, *bo-tos*, *bo-ra*, in Latin *pasco*, *pascor*, as well as *vescor*. The root *pas* is another instance of the arbitrary retention or omission of the sibilant, as we have *pas-tor*, *pas tus* with the sibilant, *pa-bulum* without it.

The use of this auxiliary in the passive, both in ancient and modern languages, is familiar to all: but it has been less carefully observed, that it is likewise employed in the perfect tenses of the active voice, at least in the Latin language. *Amav-eram*, *amav-ero*, *amav-issem*, *amav-isse*, evidently contain the forms *eram*, *ero*, *essem*, *esse*; and in the perfect subjunctive, an older form, *amavesim*, may be inferred from the three existing forms *amassim*, *amaverim*, *amarim*; and in *amav-esim* we see the full form *esim* which preceded *sim*.

After the verb *to be*, the next in importance among the auxiliaries is the verb *habe-re*, Latin, *to have*; in German, *hab-en*. Like the preceding verb, this also has undergone great corruptions. In the English *hast*, *has*, *had*, the main consonant has already disappeared. While in the Italian *ho*, from the Latin *habeo*, we find nothing of the root but the aspirate, and even that is often omitted, so that we should doubt the connection between the words but for the first and second persons plural. But as we shall have further occasion for the forms of this verb in the Roman languages of Europe, we will place here the present tenses.

Latin,	habeo,	habes,	habet;	habemus, habetis, habent.
Italian,	ho,	hai,	ha:	abbiamo, avete, hanno.
Spanish,	he,	has,	ha:	habémos or hémos, habéis, han.
French,	ai,	as,	a;	avons, avez, ont.

The use of the verb *to have* in the formation of the perfects, so universal in the modern languages derived from Latin, may be occasionally seen in the parent language also, where such phrases as *furem constrictum habeo*, *fures constrictos habeo*, differ but slightly in meaning from *furem constrinxi*, &c.; and there was the greater necessity for adopting a new formation, as the Latin perfect unites two tenses in itself, viz., the aorist and the present-perfect. It will be seen, too, from the examples which we have given, why, in the derived tongues, the participle in some cases agrees with the accusative; as *je les ai tués*. But the use of *habeo* as an auxiliary is not confined to the perfect tenses. In connexion with the infinitive it forms a convenient periphrasis for a future. From the Italian infinitive *sentir*, we have a future *sentir-o*, *-ai*, *-a*, *-emo*, *-ete*, *-anno*, the first and second persons plural, now they are used as suffixes, being reduced as completely as the rest. In the Spanish verb *hablár* the future is *hablar-é*, *-as*, *-á*, *-émos*, *-éis*, *-án*; and in the French, from *sentir* there is formed *sentir-ai*, *-as*, *-a*, *-ons*, *-ez*, *-ont*. In the tense called generally the conditional, the infinitive is again employed. The Italians unite with it their perfect tense of *to have*, derived from *habui*, viz., *ebbi*, *avesti*, *ebbe*, *avemmo*, *aveste*, *ebbero*; and their conditional is *sentir-ei*, *-esti*, *-ebbe*, *-emmo*, *-este*, *-ebbero*. On the other hand the French employ *avois*, which may be proved to have been derived from the Latin imperfect *habebam* (see Raynouard); but as *avons*, *avez*, of the present dropped their radical letters *av* when attached as suffixes to the future, so also *avois*, &c., throughout lose the same letters in forming the conditional, thus, *sentir-ois*, *-ois*, *-oit*, *-ions*, *-iez*, *-oient*. The Spanish language, in like manner, employs the imperfect *habia*, *habias*, *habia*, *habiamos*, *habiais*, *habian*, derived also from *habebam*, &c.; and thus, with the same suppression of the two first letters, the conditional of *hablar* is *hablar-ia*, *-ias*, *-ia*, *-iamos*, *-iais*, *-ian*. This view of the formation of the futures is of service in explaining the apparent irregularities so often found in those tenses, which moreover generally extend to the infinitive.

Many other verbs of the Latin language have become auxiliaries in the derived languages. 1. *Vado*, Lat. *I go*, is employed thus by the Italians, as *io vo faciendo*, *I am doing*, and in French for a future, *je vais parler*, *I am going to speak*. 2. *Venio*, Lat. *I come*, in Italian as an equivalent for the verb *to be*: *egli vien riputato*, *he is considered*: in French to denote an action just passed: *il vient de trouver*, *he has just found*. 3. *Ambula-re*, *to walk*, (corrupted into the Italian *andare* and the French *aller*,) is used in the former language thus, *andra rovinato*, *he will be ruined*, and in the French, *il alloit diner*, *he was going to dine*. 4. *Sta-re*, *to stand*, in Italian *sono stato*, *I have been*, *sta scrivendo*, *he is writing*; and the French *étois* (formerly *estois*) is a corruption from *stabam*, precisely as *aimois* from *amabam*. The Spaniards, besides several of the auxiliaries here mentioned, use *tener*, derived from the Latin *tene-re*, *to hold*, but not exactly as an auxiliary verb: and besides *ser*, *to be*, they have *estár*, *to be*, from the Latin *stare*. In the Teutonic languages the auxiliary verbs are very numerous, and our own language contains nearly the whole of them: 1. *may*, *might*, are the present and perfect of the same defective verb. In the German we find an infinitive of this verb, *mög-en*, as well as the forms *mag*, and *mochte*; 2. *can* and *could* correspond to the German *kann* and *konnte* from the infinitive *könn-en*; 3. *will* and *would* to the German *will* and *wollte* from *woll-en*; 4. *shall* and *should* to *soll* and *sollte* from *sollen*.

But though the German auxiliaries correspond with the English as to their having a common origin, they have a use which is not quite the same. 'In general, *possibility* is expressed by *können*, *dürfen* (the English *dare*, *durst*), *mögen*, and *necessity* by *müssen* (the English *must*), *sollen*, *wollen*; *lassen* (the English *let*) implies necessity as well as possibility.' (Becker's *German Grammar*, p. 65.) The German word *haben*, like the corresponding English *have*, and the German *werden*, when used alone, are notional verbs, or verbs expressing a distinct notion and not a mere relation: thus we can say, *er wird reich*, *he becomes rich*; but in the expressions *ich werde kommen*, *I will come*, *die frage wird von ihm beantwortet*, *the question is answered by him*, the verb *werden* is used as an auxiliary for the future tense and the passive voice respectively.

In the antient Greek language it has not been observed till of late years, nor, indeed, is it yet universally admitted,

that the verbs *to have* and *to wish* (ἔχω and θέλω) are often used as auxiliary verbs. That such, however, is the fact, will not be disputed by those who are the best judges. The forms of the auxiliary verbs in the modern Greek language are a confirmation of this opinion.

Those who wish to compare the forms of the Lithuanian language with those of the cognate tongues may consult *Anfangs-gründe einer Littauischen Sprachlehre*, &c., Von C. G. Mielcke, Konigsberg, 1800.

AUXONNE, or **AUSSONNE**, a fortified town in France, on the left bank of the Saone, and on the road from Paris through Dijon to Geneva, 201 miles S.E. of Paris and 18 S.E. of Dijon. It is in the department of Cote d'Or.

The foundation of this city is fixed by some about the year 400 of the Christian era; but nothing certain appears to be known of it. It was first part of the county of Burgundy, and then was made the capital of the county of Auxonne, which came by exchange into the hands of the dukes of Burgundy, but was not united with their duchy. Upon the seizure of the possessions of the dukes of Burgundy by Louis XI. it fell into the power of that prince. By the treaty of Madrid it was ceded by Francis I. of France to the emperor Charles V.; but the inhabitants refused to submit to the emperor, and obliged his general, Lannoy, who in 1526 besieged the town for nine months, to raise the siege. Before the kings of France acquired possession of the Franche Comté, Auxonne was one of the frontier towns of Burgundy, and was defended by a castle flanked by six large towers erected by Louis XI., Charles VIII., and Louis XII. In 1673 the town was fortified by Vauban.

The streets are straight, and the fortifications serve as pleasant promenades. There is a fine bridge over the Saone, and at the end of the bridge, on the side next the town, is a causeway of 2350 paces in length (nearly 2[illegible] English miles), having twenty-three arches for allowing passage to the water in case of inundation. This causeway was constructed at the expense of Margaret of Bavaria, duchess of Burgundy, in 1410. There are barracks, an arsenal, a school of artillery, cannon foundry, and powder mills; also a library and a high school. There were several religious houses before the Revolution, and a poor and ill built hospital. The town formerly consisted of two parishes, which are now in [illegible].

The trade of Auxonne consists chiefly in wine, grain, and wood, as well as cloth and serges, which are sent to Lyon. In return, groceries, silk, and the wines of Macon are received. These wines are sold again in Lorraine and Franche Comté. There are several working goldsmiths in the town. The number of inhabitants was in 1832 about [illegible]000.

There are in the neighbourhood of Auxonne quarries of stone of various colours, blue, red, yellow, and purple; some species of turquoises and fossil corals are found in these quarries. There is also pretty good marble. The district of Auxonnois is low and marshy, watered by many brooks, and affording abundance of good pasturage. (*Encyclopédie Méthodique; Dictionnaire Universel de la France*; Dupin; Malte Brun; Expilly.)

AUZOUT, ADRIEN, was a native of France, but neither the place nor time of his birth is known. He had established his reputation as an astronomer in 1666, and was one of the original members of the Academy of Sciences founded in that year. He died in 1691, according to Delambre and others; in 1693, at Rome, according to Montucla, who cites the records of the Academy. The collection hereafter noticed, published in 1693, speaks of him as living (p. 340).

Auzout is celebrated as having, in conjunction with Picard, applied the telescope to the mural quadrant. This rests on an admission of Picard to Lalande (Montucla, ii. 569), asserted by the latter; but there is no mention of it in Picard's book *On the Figure of the Earth*. Auzout also made an independent invention and application to the telescope of the moveable wire micrometer, on which he published a treatise in 1667. Picard assisted him in perfecting this instrument. Huyghens has been frequently stated as an inventor of this micrometer, but his instrument is different from, and inferior in principle to, that of Auzout (Delambre, *Ast. Mod.*, *Disc. Prelim.* p. 47.) The prior invention of Gascoyne (ASTRONOMY, p. 531) is admitted, and was brought forward by Hooke and others of the Royal Society, in opposition to the invention of Auzout. The French have always retorted, with just severity, that the invention of their countrymen must needs be original, since the English themselves did not know what Gascoyne had done, till Auzout communicated his own micrometer to the Royal Society; thus allowing a method of first-rate importance to astronomy to lie idle, till national feeling, and not love of science, ransacked their own records.

Auzout published observations and calculations of the comet of 1664, and the presentation of his results to Louis XIV. is said to have given that prince the first idea of founding an observatory at Paris. He also made a laborious comparison of the weights and measures of France and other countries, which is to be found, together with his own account of his micrometer, in the folio collection of Memoirs of the Academy, entitled *Divers Ouvrages de Mathématique et Physique*, Paris, 1693. Among other results of the micrometer he observed and measured the diurnal variation of the moon's diameter first explained by Kepler. He was engaged in several discussions with Hooke, which more concern the biography of the latter.

Besides the preceding works, we have left of Auzout a letter on some new observations of Jupiter and Saturn, Paris, 1664; and a letter to the Abbé Charles on a collection of observations published by Campani, Paris, 166[illegible].

Auzout was a good optician and maker of telescopes; and when it is added that he never enjoyed even tolerable health, he must be considered as having done not a little for astronomy.

AVA. [See BIRMAN EMPIRE.]

AVAL. [See BAHREIN ISLANDS.]

AVALANCHES are the most dangerous and terrible phenomena to which the valleys embosomed between high, snow-topped mountain ranges are exposed. They are especially frequent in the Alps, owing to the steepness of their declivities; but they are also known in other mountain regions, as in the Pyrenees and in Norway. They originate in the higher region of the mountains when the accumulation of snow becomes so great that the inclined plane on which the mass rests cannot any longer support it. It then is pushed down the declivity by its own weight, and precipitated into the subjacent valley, where it often destroys forests and villages, buries men and cattle, and sometimes fills up the rivers and stops their course. Besides what is covered with the masses of snow, persons are often killed and houses overthrown by the sudden compression of the air caused by the incredible velocity with which these enormous masses descend.

Four different kinds of avalanches may be distinguished: drift avalanches, rolling avalanches, sliding avalanches, and glacier or ice avalanches; of which the first commonly take place in the early part of the winter, the second and third at the end of winter and in spring, and the last only in summer.

The drift or loose snow avalanches (called in Switzerland, staub-lauinen) take place when heavy snow has fallen in the upper region of the mountains during a still calm, and this accumulated mass, before it acquires consistency, is put in motion by a strong wind. The snow is driven from one acclivity to another, and so enormously increased in its progress, that it brings down an incredible volume of loose snow, which often covers great part of a valley. The damage caused by these avalanches is however generally not very great, because most of the objects covered by them may be freed from the snow without having sustained great damage; but they often produce such a compression of the air that houses are overturned, and men and cattle suffocated.

The rolling avalanches are much more dangerous and destructive. These take place when, after a thaw, the snow becomes clammy, and the single grains or flocks stick to one another, so as to unite into large hard pieces, which commonly take the form of balls. Such a ball moved by its own weight, begins to descend the inclined plane, and all the snow it meets in its course downwards sticks firmly to it. This snow mass, increasing rapidly in its progress, and descending with great velocity, covers, destroys, or carries away everything that opposes its course, trees, forests, houses, and rocks. This is the most destructive of the avalanches, and causes great loss of life and property. In the year 17[illegible] the whole village of Rueras, in the valley of Tawich, in the canton of the Grisons, was covered, and at the same time removed from its site by an avalanche of this description; but this change, which happened in the night time, was effected without the least noise, so that the inhabitants were not aware of it, and on awaking in the morning could not conceive why it did not grow day. A hundred persons were dug out of the snow, sixty of whom were still alive, the interstices between the snow containing sufficient air to sup-

port life. In 1806, an avalanche descended into Val Calanca, likewise in the canton of the Grisons, transplanted a forest from one side of the valley to the other, and placed a fir tree on the roof of a parsonage-house. In 1820, sixty-four persons were killed in Fettan, in the high valley of Engadin, in the country of the Grisons; and, in the same year, eighty-four persons and four hundred head of cattle, in Obergestelen, and twenty-three persons at Brieg, both situated in the canton of Wallis. In the same country, the village of Briel was almost entirely covered by an avalanche in 1827.

Many thousands of strong trees are destroyed by these avalanches, either by being broken off near the ground, or by being rooted up, shivered to pieces, and thus precipitated into the valley. Where these avalanches are of common occurrence, the inhabitants of the valleys know the places where they come down, and by observing the changes of the weather, they are able to foretell the time of their descent.

The sliding avalanches (rutsch lauinen, also called suoggi (pron. suggy) lauinen in Switzerland) originate on the lower and less steep declivities, when, after a long thaw in spring, those layers of the snowy covering which are nearest the ground are dissolved into water, and thus the bond is loosened which unites the mass to its base. The whole snowy covering of a declivity then begins to move slowly down the slippery slope, and to carry before it every thing which is too weak to withstand its pressure. When an object does not directly give way to the mass, it is either borne down by the snow accumulating behind it, or the whole mass divides and proceeds in its course on each side of it.

The ice or glacier avalanches are nothing but pieces of ice which formerly constituted a part of a glacier, but, loosened by the summer heat, are detached from the principal mass, and precipitated down with a noise like thunder. They are commonly broken into small pieces by the rocks which they meet in their progress. When seen from a distance, they resemble the cataracts of a powerful stream. In the valley of Grindelwald, in the canton of Bern, they may often be seen; and at the base of the Jungfrau, the thunder which accompanies their fall is almost continually heard. They are less destructive than the other avalanches, because they descend only upon places which are not inhabited.

Occasionally the avalanches change their character in their progress. When the declivity is not too great, and the ground under it not too slippery, the mass of snow begins to slide; but arriving at a precipitous descent, its velocity and its mass are greatly increased, and it begins to roll. If, at this stage of its course, it meets a strong, craggy rock, the mass is instantly divided into innumerable small pieces, and thus it appears at the end of its progress like a drift avalanche.

Avalanches is the common French expression for these natural phenomena, but in those districts of France which are situated between the ranges of the Alps, they have other names: as avalanges, lavanches, lavanges, lavanzes, lids, lits, lydts. In Italian they are called lavina and lavino; and in the Rhetic dialect of the Grisons, lavina and lavigna. Among the German inhabitants of Switzerland, they are named lauinen, lauwinen, lauwen, leuen, lowen, and lähnen. In the Pyrenees they are sometimes called congeres; and in Norway, snee-shred and snee-fond. (Kasthofer's *Observations on a Journey through the Alps, &c.*)

AVALLON, a town in France, in the department of Yonne, on the road from Paris to Lyons, 132 miles from Paris to the S.E. It is mentioned in the Itinerary of Antoninus under the name of Aballo, and the attacks made upon it, in the tenth and eleventh centuries, indicate that it was at that period a place of some note. It stands on an eminence composed of coarse red granite, of moderate elevation, on the right bank of the Cousin (called in Brué's Map of France, and in that given in the *Encyclopédie Méthodique*, the Voisin), and has well-built houses, and broad and clean streets. Along the brow of the hill on which the town stands, on the side next the river, is a pleasant walk planted with lime trees. The ascent is at this part pretty steep, and the height of the hill above the bed of the stream is estimated at 600 feet, so that an extensive prospect is obtained of the district of Morvan, within the boundary of which Avallon is situated. This district of Morvan consists of primitive rocks, and abounds with wood; from it a considerable part of the supply of that article for Paris is derived. [See MORVAN.] It is collected at Avallon, and from thence sent in curiously-constructed rafts down the Cousin into the Cure; by this again into the Yonne, and then by the Seine to Paris. Casks, mustard, woollen cloth, and paper are among the manufactures of the town and neighbourhood, and a trade is carried on in corn, wine, cattle, and in coals. The inhabitants are above 5000. Avallon is the capital of an arrondissement or sub-prefecture, and has a *tribunal de commerce*, or court of reference for settling commercial disputes, a high-school (*collège*), and an agricultural society. There are a theatre, public baths, and an hospital. Before the revolution there were four religious houses, and the church was collegiate. Near Avallon may be traced some remains of the Roman road formed by Agrippa, son-in law of Augustus, from Lugdunum (Lyon) to Gesoriacum (Boulogne).

The neighbourhood of Avallon consists, on one side, of meadow land and marshes, and on the other of arable land, fertile in corn, and producing wines of good quality. The arrondissement contains 456 square miles, or 291,840 acres. Its population is about 47,000. (Expilly, *Dictionnaire Géographique, &c., des Gaules et de la France:* Millin, *Voyage dans les Departements du Midi de la France; Letters from France*, by John M. Cobbett; Malte Brun.)

AVANTURINE, a variety of quartz, remarkable for the brilliancy with which it reflects light, the effect being in general produced by fine points of mica imbedded within the crystalline mass. From this circumstance it is sometimes employed in jewelry, but it is of little value.

AVATARA is a Sanskrit word, which properly signifies 'a descent, or the act of descending,' *e.g.* from a boat or other vehicle; but is particularly applied to the incarnations of the Hindu deities, or their appearance, in some manifest shape, upon earth. Our information regarding the successive development of religious and mythological ideas among the Hindus is yet very imperfect. It appears, however, that the doctrine of the Avatâras belongs to a comparatively recent period. Those portions of the vedas or sacred writings of the Hindus, to which, from the style and structure of their language, the highest antiquity may with safety be attributed, inculcate the worship of elements and deified natural powers, but do not allude to those apparently more spiritualized deities that require to be invested with a bodily frame to operate in the material world.

The number of the Avatâras mentioned in the Puranas, or legendary poems of the Hindus, is very great. Those of Vishnu alone, who is distinguished by the character of 'Preserver' in the Trimûrti, or triad of the principal Hindu deities, are stated to be endless. They are variously enumerated; but all accounts seem to agree in selecting the following ten as the most conspicuous: —

1. *Matsya*, the Fish, under which form Vishnu preserved Manu, the ancestor of the present human race, during a universal deluge.

2. *Kûrma*, the Tortoise, which incarnation Vishnu underwent in order to support Mount Mandara, or rather the entire earth, when the celestial gods and their opponents the Asuras, or Daityas, were churning the sea for the beverage of immortality (amrita).

3. *Varâha*, the Boar. Vishnu, with the head of a monstrous boar, is represented as slaying Hiranyâksha, the chief of the Asuras, who had taken possession of the celestial regions, and as uplifting the earth which had been sunk to the bottom of the sea.

4. In his incarnation as *Narasinha*, a being half man and half lion, Vishnu killed Hiranyakasipu, the brother of Hiranyâksha.

5. The form of *Vâmana*, the Dwarf, was assumed by Vishnu to humble the pride of King Bali. He went to a sacrifice which the king was performing, and supplicated for as much ground as he could measure with three steps, which request being granted, the dwarf suddenly grew to an immense size, and with his steps comprised earth, mid-air, and heaven.

6. Vishnu appeared in a human form, as *Parasurâma*, the son of Jamadagni and Rênukâ, in order to preserve mankind, and especially the Brâhmans, from the tyranny of the military tribe of the Kshatriyas.

7. Vishnu was born as the son of King Dasaratha, and, under the name of *Râma*, in order to destroy Râvana, the Daitya sovereign of Ceylon, and other demons who were then infesting the earth. The actions of Râma form the subject of a celebrated epic poem in Sanskrit, called the Râmâyana, and attributed to the antient sage Vâlmîki.

8. **The most celebrated of the Avatâras of Vishnu is his appearance in the human form of *Krishna*, in which he is supposed to have been wholly and completely incarnate, whereas the other Avatâras are only considered as emanations from his being. Krishna assisted the family of the Pândavas in their war with the Kurus, and through them relieved the earth from the wicked men who oppressed it. The history of this conflict is told at length in the Mahâbhârata, another great epic poem in Sanskrit.**

9. *Buddha* is, by the followers of the Brahmanical religion, considered as a delusive incarnation of Vishnu, assumed by him in order to induce the Asuras to abandon the sacred ordinances of the Vedas, by which they lost their strength and supremacy.

10. *Kalki* is the name of an Avatâra in which Vishnu will appear at the end of the Kaliyuga, or present age of the world, to destroy all vice and wickedness, and to restore the world to virtue and purity.

We cannot enumerate the Avatâras of the inferior deities, in which the mythology of the Hindus abounds. We do not remember ever to have heard of any of Brahmâ or Siva, the two supreme deities who, with Vishnu, constitute the Trimûrti. In the seventh volume of the *Asiatic Researches* (Calcutta, 1801) may be seen an account given by Captain Edward Moor of an incarnation of Ganesa, or Ganapati, which had, since the year A.D. 1640, become hereditary in the family of Mooraba Gosain, a Brahman at Punah. Mrs. Graham (now Mrs. Callcott), who in 1809 visited this living Avatâra, which was then a child, has given an interesting notice of it in her journal.

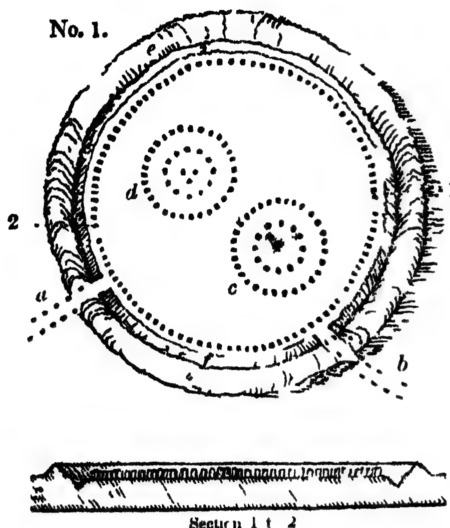
(See the articles MANU, RAMA, KRISHNA, BUDDHA; Bohlen, *Das alte Indien*, vol. i. pp. 213 234: Vans Kennedy, *Researches into the Nature and Affinity of Antient and Hindu Mythology*, London, 1831, 4to.)

AVEBURY, ABURY, ABIRY, the name of a village and parish in Wiltshire, England, is remarkable as the site of what was once the largest and most interesting Celtic or Druidical temple in Europe. The origin of the name is uncertain: the last part, *bury*, a borough, or fortified place, appears to be a Saxon word, and if so, Avebury is not the original name of the place. We shall endeavour to furnish the reader with an account of this great work, as it is presumed to have been when in a perfect state; and also with the opinions of some eminent antiquaries respecting its original destination. For this purpose we must refer to the descriptions, drawings, and printed accounts which Dr. Stukeley has left in his interesting work, entitled *Abury, a Temple of th British Druids*, fol. 1743. Though the volume bears this date, it appears that the doctor surveyed the place, and made numerous drawings of it, and of the various objects in the vicinity, during the years 1720—24. It is due to that learned and zealous, but rather credulous antiquary to say, that his delineations have every appearance of general accuracy, and that his descriptions are sufficiently perspicuous to be understood.

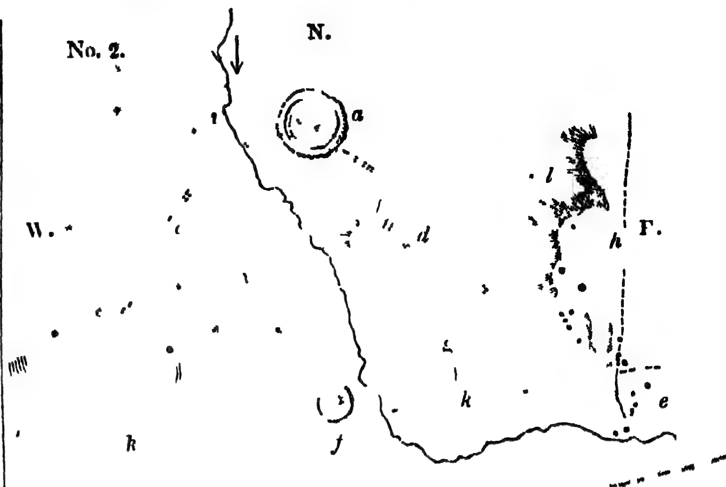
Before Stukeley's publications, very little was known of Avebury; neither Camden, Leland, nor any other topographer or antiquary seems to have published any account of it. Aubrey, a native of Wiltshire, and an ardent lover of antiquarian subjects, had visited Avebury in 1648. In the year 1663, he was commanded by King Charles II. to write some account of this remarkable monument, the monarch being then on his way to Bath, and having examined the whole in company with Aubrey and Dr. Charlton, who afterwards published *An Account of Stonehenge*. 'These antiquities,' says Aubrey in his MS. treatise, 'are so exceedingly old that no books do reach them. I can affirm that I have brought this temple from utter darkness into a thin mist, and have gone farther in this essay than any before me.' Though Aubrey's account is very imperfect, and was never completed, and though his sketches are even more defective than his descriptions, yet as they are the first records of the place, and contain some useful facts and evidence of the state of the temple seventy-six years before Dr. Stukeley commenced his survey, they are valuable and interesting to the antiquary. [See AUBREY.]

The accompanying plans show the general form and arrangement of the temple, with the avenues of approach. When the aborigines of the island fixed on this site for their great temple, we may reasonably conclude that it was in a state of nature, and, like the general character of the Marlborough Downs and Salisbury Plain, was without either forest-trees or underwood of any kind. A thin stratum of mould here covers a continuous chalk substratum, which presents a clean, dry, grassy surface. The immediate site chosen for the grand circular temple is a flat area of ground, having an irregular range of gentle hills to the east, running north and south, a rising tract of land to the south, a level country of some miles in extent to the north, some undulating and rather high hills to the west, and extending thence to the east. A small brook, or rivulet, called the Kennet, a tributary to the Thames, has its source a short distance north of the temple. The geological characteristics of the district probably occasioned its being chosen for the erection of a temple which was to be the chief edifice of the sort in the island. As Stukeley remarks, this might have been regarded as the grand national cathedral, while the smaller circles, in different parts of the island, might be compared to the parish, or village churches. On the surface of the ground, both in the neighbouring valleys and on the high lands, are numerous large masses of stone. There is still a great number of detached oolitic sandstones of various sizes, known by the name of the Grey Wethers, lying near the Bath road, in the neighbourhood of Avebury. From amongst these stones scattered about the neighbourhood, the builders or rather makers of the temple selected such as seemed best adapted to their rude design.

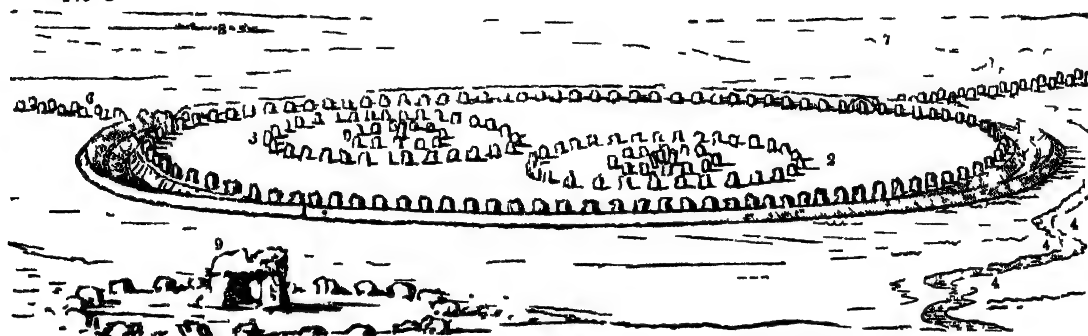
No less than 650 blocks were brought together and placed in circles and rows. These stones were of various dimensions, measuring from five to twenty feet in height above the ground, and from three to twelve feet in width and thickness. One hundred were raised on end, and placed in a circular form, around a flat and nearly circular area of about fourteen hundred feet in diameter; and these stones were bounded by a deep ditch and lofty bank, which enclosed the whole work, except at two places, where openings were left for entrances to the temple. The bank or mound at present is broken down in four places, but there seem to have been originally only two openings corresponding to the two great avenues which will be described hereafter. The inner slope of the bank measured eighty feet, and its whole extent, or circumference, at the top was, according to Sir Richard Colt Hoare, 4442 feet: the area within the bank or mound is somewhat more than twenty-eight acres. About half way up the inner slope was a sort of terrace walk, apparently adapted for spectators. Dr. Stukeley conjectures that there was a second circular arrangement of upright stones at a short distance within the other circle; and he founds his opinion upon the fact of there being one large stone in a position which does not come into any other component circle of the temple. As shown in the accompanying diagram, No. 1, and view, No. 3, there were two other small temples within the periphery of the great circle. One was a double circle of upright stones, with a single stone raised near the centre, which Stukeley calls the ambive, or obelisk: this small temple consisted of forty-three stones, and is referred to in No. 1 at *c*. Another temple, of forty-five stones, some of which are still standing and of immense size, was placed a little north of the former, and consisted also of two concentric circles, enclosing a group of three tall stones, called the cove. These were the component parts and the general design and arrangement of the triple temple, as it may be called; but there were two members, or connecting parts, which belonged, and gave a peculiarity to this work, distinguishing it from all other Celtic temples. These were avenues of approach, consisting of double rows, or lines of upright stones, which branched off from the central work, each to the extent of more than a mile. One of them branched off from the outer circle, to the south, turning, near its extremity, to the south east, where it terminated in two circular or rather elliptical ranges of upright stones (see No. 2, *e*). According to Stukeley, this avenue was formed by two hundred stones, being finished at its eastern extremity with fifty-eight stones. The width of the avenue varied from fifty-six to thirty-five feet between the stones, which were, on an average, eighty-six feet apart from each other in their linear direction. The outer oval of the terminating temple (*e*) to the south-east, on an eminence called Overton Hill, or the Hakpen, measured about 146 feet in diameter; the inner oval was forty-five feet across. The western avenue (*c*) extended about one mile and a half, and consisted of 203 stones; its extremity ended in a point, or with a single stone. These avenues, or grand approaches to the temple, were not arranged in straight,



[No 1—*Ground Plan of the* … the circumvallation of the … inner temple c, the north … inner temple d.]



[No 2—Pl… … avenues c and d, the temple … Silbury Hill f … Roman road from Bath to London, k, • • barrows, sites … of villa … l]



[No 3—*A bird's eye View of the Temple* from the north, looking south, and intended to display the circumvallated bank 1, the two inner or small temples 2 and 3, the course of the Kennet river 4, the western … the southern avenue 6, the situation of Silbury Hill 7, a large barrow, called by Stukeley the Druids barrow, 8, a cromlech … small stones 9.]

but rather in flowing or curved lines, and, according to the theories of Dr Stukeley and some of his followers, were intended to represent the natural action of a serpent

Besides the works already described, there are others of very remote antiquity in the immediate vicinity, which, if not integral parts of the temple, were either connected with it, or may be regarded as belonging to the same age and people These are the numerous barrows, or tumuli which abound on the neighbouring downs, with the cromlechs and the track-ways Among the first may be named that large barrow called *Silbury Hill*, the position of which is shown in diagram No 2, *f*, and No 3, 7 This vast artificial conical mound of earth is regarded as the largest tumulus in Europe, and may be compared to those mentioned by Homer, Herodotus [see ALYATTES], and other antient writers Stukeley, who has given a minute but not very accurate account of it, considers it to be the sepulchral monument of a British king who founded the temple at Avebury 'I have no scruple to affirm, he says, 'it is the most magnificent mausoleum in the world, without excepting the Egyptian pyramids Though this is a great exaggeration, it is a work which must have cost immense labour. In Sir Richard Hoare's large publication, entitled *Antient Wiltshire*, we are furnished with the survey and calculations of Mr Edward Crocker, a scientific practical surveyor. 'The circumference of the hill, as near the base as possible, measures 2027 feet, the diameter, at top, 120 feet, the sloping height 316 feet, and the perpendicular height 170 feet, but that part of our measurement which will excite the most surprise, is, that this artificial hill covers the space of five acres and thirty-four perches of land.' For what purpose this huge pile of earth was raised, appears to be beyond the reach of conjecture; but 'I think, says Sir R Hoare 'there can be no doubt it was one of the component parts of the grand temple at Abury, not a sepulchral mound raised over the bones and ashes of a king or arch druid Its situation opposite to the temple, and nearly in the centre between the two avenues, seems in some degree to warrant this supposition Dr Stukeley (p 51) observes 'that the meridian line of the whole work passes from Silbury Hill to the centre of the temple of Abury, which observation, making the proper allowance for the variation of the compass, we found very nearly correct in the year 1814 Many other barrows of various dimensions and forms are seen on the downs, some of which Sir Richard Hoare opened in the year 1814 [See BARROW] A proof that Silbury Hill, and some other barrows near it were raised before the Roman colonization of Britain, may be found in the fact that the line of the great Roman road from *Aquæ Solis*, or Bath, to *Londinum*, or London, is straight for some miles till it comes to the hill, when it diverges to the south, and again continues in a direct line to Marlborough in one place the road-makers cut through a large barrow in forming their road.

In the garden of the Castle Inn at Marlborough there is a conical mound of considerable elevation: it is now planted with trees, and a winding path has been made round it, leading to the top Mr Bowles remarks that this mound, Silbury Hill, and the mound at Marden form a triangle, which of necessity they must, unless they lie in a straight line

About one mile north of Avebury are the remains of a large *cromlech*, with the stones fallen, which Stukeley calls a *kist-vaen;* and at Clatford-bottom, about three miles east

of Avebury, is another *cromlech*, consisting of two standing stones, and one larger raised on them. South of Avebury, about two miles, is a large and long tumulus, which Stukeley called the Arch-Druid's barrow, and which was formerly surrounded by upright stones, and had a kist-vaen, or a cromlech, at one end. At Winterbourne-Basset, north of Avebury, were two circles of standing stones, and a single stone standing detached from the circle. At Rockley, and on Temple Downs, east of Avebury, were other cromlechs, and works of a similar kind to those already referred to. There were numerous other earth-works and standing stones in different parts of the downs, all tending to show that this district was, at a remote age, not only a place of permanent residence for a large population, but that it was the chief seat of the religious order of the antient Britons.

The space inclosed by the great earthen bank of Avebury now contains a village with its fields, hedge rows, and buildings, so that it is difficult at present to make out the original design. When Aubrey surveyed the place, in 1648, there were many more stones than at the time Dr. Stukeley commenced his examination in 1720, and when Sir Richard Hoare and his surveyor made their plan and drawings, in 1812, the stones were still further diminished in number. Even since the latter date, others of the upright stones have been broken to pieces, and it is feared that the remainder will speedily be destroyed and converted into materials for stone fences or roads. Aubrey describes 63 stones as remaining within the entrenched inclosure in his time, which were reduced to 29 when Stukeley made his plan. Only 17 of these remained in 1812, as mentioned by Sir Richard Hoare. In the western avenue there are two upright stones left, and about 16 of the southern avenue, but not one remains of the two ovals on Hakpen Hill.

As to the time when this singular work at Avebury was constructed, and the design of it, opinions differ considerably. The most common opinion is that it was raised by a class of the aboriginal inhabitants of Britain called the Druids or Priests before the Christian era, and was a national temple in which they performed their sacred rites. Some authors imagine that it served the double purpose of religion and judicature. It seems certain that at least it was not intended for defence, because the ditch is *within* the mound. On these matters we seek in vain for any thing like authentic history, or evidence which may satisfy the discriminating inquirer. Nearly all writers on this subject such as Stukeley, Borlace, Toland, King, Vallancey, Rowlands, Davies, and others, have indulged their fancy in dissertations and speculations on the religion, the manners, the arts, and the polity of an antient people, without any data at all. Dr. Stukeley prosecuted his antiquarian studies with intense zeal and considerable learning, but with a disposition to indulge in extravagant speculation; and some of his followers have embraced his theories without adopting the same process of study and research. They contend that the Temple at Avebury was raised by the Druids, who worshipped the sun and the moon, and where 'public sacrifices, games, hymns, &c., were periodically performed at 'four seasons or great festivals of the year.' 'On no one subject,' says the Rev. Mr. Ledwich, in *Archæologia*, vol. vii., 'has fancy roamed with more licentious indulgence than on that of the Druids and their superstitions. Their admirers have represented them as cultivating the abstrusest sciences, and penetrating the sublimest mysteries of nature, anticipating the discoveries of Pythagoras, Epicurus, Archimedes, and Newton, and all this without the aid of letters or experiments, without those progressive steps in civilization which polish and refine the mind, and naturally lead it to the study of abstract knowledge. Such information, or rather such inferences, have been drawn from a few imperfect and incidental notices in the writings of Julius Cæsar, Diodorus, Strabo, Mela, Lucan, Tacitus, and Pliny. The whole information of all those authors would not amount to three or four pages; yet from such materials some modern English writers have contrived to write many volumes. It is not necessary here to make any remarks on the theories of Borlace, Stukeley, King, Higgins, Davies, and Deane. The last-mentioned gentleman has lately published a volume 'on the worship of the serpent,' in which he adopts the theories of Dr. Stukeley, and endeavours to prove that the Temple at Avebury and some others were constructed in imitation of the *form* of a serpent, and hence may be called *dracontia*, or serpent temples. The 25th volume of the *Archæologia* contains his account, with plans and views, of the vast ranges of upright stones at Carnac in Bretagne.

For dissertations on Avebury particularly, and other matters connected with Druidical antiquities, &c., the reader is referred to Dr. Stukeley's volume already noticed; to another folio volume by the same author on *Stonehenge*; to Sir Richard Hoare's *Antient Wiltshire*; Davies's *Celtic Researches*, 8vo., 1804; and his other volume, *The Mythology and Rites of the British Druids*, 8vo., 1809, Roberts's *Sketch of the Early History of the Cymry, or Antient Britons*, 8vo. 1803; Borlace's *Antiquities of Cornwall*, fol. 1769; King's *Munimenta Antiqua*, fol. 1799; Mallet's *Northern Antiquities*, 2 vols. 8vo., 1809, Toland's *History of the Druids*, 8vo. 1814; Higgins's *Celtic Druids*, 4to., 1827; *Present State of Abury*, by the Rev. J. Hunter, *Gentleman's Magazine*, July, 1829.

AVEIRO, a city of Portugal, in the province of Beira, 40° 38′ N. lat., 8° 56′ W. long. It stands on a gentle elevation, upon the banks of the river Vouga, which flows through the town, where it is very narrow, and is adorned with a handsome quay. The town is divided into five parts, one of which is surrounded with an antient wall, and the remaining four are the suburbs. At the highest part of the city, on the southern side, is a promenade leading to a convent of Franciscan friars. Both in this promenade and in the suburbs are several fountains, the water of which is employed for domestic uses and for irrigating the gardens. Aveiro is separated from the sea by a bar of sand-hills formed by the tide of the mouth of the river Vouga, which forms a small haven. Over this bar vessels that do not draw above eight or nine feet of water may conveniently pass. The small gulf opposite the town is covered with little islands on which the inhabitants make great quantities of common salt; this article, with oranges and salt fish, forms their principal branch of export. In these islands they cultivate several species of vegetables for common use. The sea on the coast abounds in delicate fish and sea birds. The lampreys of the Vouga, and the shell-fish of that part of the coast, are celebrated in Portugal. The town has two parishes, four convents of monks, and three of nuns; its population amounts to 5064 inhabitants.

Aveiro is the capital of the Comarca, or district of that name, which embraces all the territory comprised between the districts of Coimbra and Feira on the south and north, and between Viseu and the ocean on the east and west. The whole district contains a population of 81,570 inhabitants, distributed in several villages, all situated on the banks of the rivers Vouga and Agueda. The country is generally fertile, and produces grain, wine, oil, and fruit, especially oranges. The territory is low, intersected by many brooks and small channels, and confined on the east side by a high mountain, which is a branch of the Sierra de Alcoba. This situation renders this district unhealthy, and subjects its inhabitants to intermittent fevers. (Miñano's *Diccionario Geografico*, Antillon's *Geografia*, Castro, *Mappa de Portugal antiguo e moderno*.)

AVE'LLA, a town in the province of Terra di Lavoro, in the kingdom of Naples, near Nola, on the skirts of the plain, and at the foot of the mountains which divide it from the province of Principato Ultra. It commands a fine view as far as Naples, from which it is eighteen miles distant N.E. It gives the title of Prince to a Neapolitan family. Near Avella are the ruins of the antient Abella, celebrated by Virgil (*Æneid* vii.) for the abundance of its apples, for which its territory is still famed. The honey gathered in the neighbourhood is also renowned for its flavour. Remains of the extensive antient walls and of the amphitheatre are still to be seen. The river Clanius, or Lagni, has its source in the mountains near Avella, and after watering the plain of Campania, flows into the sea near the lake Patria.

AVELLI'NO, a considerable town of the kingdom of Naples, and the capital of the province of Principato Ultra. It is on the high road from Naples to Puglia, 30 miles E. by N. of Naples, in 40° 55′ N. lat., and 14° 45′ E. long. Avellino is built on the declivity of a hill in a fine valley watered by the river Sabato, between two offsets of the Apennine chain, of which the one to the north-west of Avellino divides the valley from the plains of Campania. In this ridge is the strong pass of Monteforte, famous in the wars of that country. The ridge on the eastern side of the Sabato is formed by the mountains of Montefusco and Montemileto, which divide the valley of Avellino from that watered by the river Calore, beyond which is the third

or central ridge, on which Ariano stands. [See ARIANO.] The Calore and the Sabato afterwards unite their waters at Benevento, 15 miles N. by W. of Avellino. From Avellino a fine new road leads to Salerno, which is seventeen miles to the south. Avellino was built in the time of the Lombards, it is believed, by the inhabitants of Abellinum, which was situated on a mountain about two miles eastward, near the small town of Atripalda, where many remains of antiquity have been found. Three miles north of Avellino, on a rugged mountain, stands the celebrated sanctuary of Monte Vergine, once a rich Benedictine convent, now suppressed; it was built in the eleventh century, on the ruins of a temple of Cybele The population of Avellino is reckoned by Balbi at 13,000, which we think too low, as the town has considerably increased of late years; we believe it must be at least 20,000. Avellino is a bishop's see, and a place of considerable trade in country produce, cattle, &c, owing to its favourable central position; there are also several manufactures of cloth, maccaroni, and paper. It has a royal college for the instruction of youth; it also contains the courts of justice for the province of Principato, and is the residence of the intendente or governor of the province. It gives the title of prince to a Neapolitan family, a branch of the house of Caracciolo, which is possessed of considerable estates in the neighbourhood. The eldest son of the Prince of Avellino bears the title of Duke of Atripalda The territory of Avellino abounds with fruit trees, especially the apple and the hazel-nut. the latter was much esteemed in the time of the Romans, under the name of nux Avellana

A'VE MARI'A, the two first words of a short Latin prayer or invocation to the Virgin Mary, which is frequently said by Roman Catholics in their orisons. The first part of the prayer is merely a repetition of the salutation of the angel to Mary on her conception. (See Luke's *Gospel*, i. 28) The second part is an entreaty to the Virgin 'to pray for the salvation of sinners now and at the time of their death' The recital of the Ave Maria generally follows that of the Pater Noster, or Lord's Prayer.

Ave Maria is also in Italy the name of a particular time of the day, about half an hour after sunset, when the church bells ring, and pious persons leave off for a moment their occupations or pastimes and ejaculate the Ave Maria. It is also called the Angelus in other catholic countries. To this custom Byron alludes in these fine lines,—

> Ave Maria! blessed be the hour!
> The time the clime the spot where I so oft
> Have felt that moment in its fullest power
> Sink o'er the earth so beautiful and soft
> While swung the deep bell in the distant tower,
> Or the faint dying day hymn stole aloft,
> And not a breath crept through the rosy air,
> And yet the forest leaves seem'd stirr'd with prayer
>
> *Don Juan* Canto III

In many churches, and especially convents, the bells are also rung at the first dawn of day, and this is called in Italy the morning Ave Maria, *l'Ave Maria del giorno.*

AVEMPACE, or AVEN PACE, properly ABU BEKR MOHAMMED BEN BAJAH, but better known in the East under the surname of EBN-AS SAYEG, an Arabian philosopher and poet, was, according to the Bibliographical Dictionary of Ebn Khallican, a native of Saragossa, or, according to Joannes Genesius Sepulveda, of Cordova. Of the circumstances of his life we know but little He entertained very free opinions respecting the divine authority of the Koran, and several other points of the Mussulman faith. He died at an early age, according to Ebn Khallican in the year 533 after the Hegira (A.D. 1138), according to others in A. Heg. 525 (A D. 1130). He wrote several short dissertations and essays on philosophical subjects, which were collected by Abu'l-Hassan Ali, who preferred Avempace to all Mohammedan philosophers that had preceded him. Other more extensive works he left behind in an unfinished state; among these Ebn Tophail notices a Treatise on the Soul, one on Solitary Life, another on Logic, and on Natural Science. Several of his works were known to the schoolmen by Latin translations. The name Avempace, or Aven Pace, is a corruption of Ebn Bâjah. (See *Philosophus Autodidactus, sive Epistola Abi Jaafar Ebn Tophail*, ed. Pocock, pp. 15-16, and preface; Nicol. Antonii *Bibliotheca Hispana Vetus*, Rome, 1696, vol. ii. p. 232; D Herbelot, *Bibliothèque Orientale*, art. Saieg.)

AVEN. [See AVON.]

AVE'NA, the botanical name of the genus to which the cultivated oat belongs. As understood by Linnæus and the writers of his school, it comprehended many very distinct forms of grasses, as well as the common cultivated kinds; but by other botanists it is more correctly limited to the species that yield corn, and to such as are closely allied to them. They are known by their lax panicles, their two loose membranous glumes, and by the small number of their florets, each of which has one of its husks or paleæ armed with a strong twisted beard or awn. The grain is generally, but not uniformly, closely invested with the hardened husk.

The common oat, *Avena sativa*, is that which is most generally cultivated for the use of man; like most other corn-plants, its native country is unknown; it cannot, however, be supposed to be the offspring of cultivation or of chance, but is more likely to be an inhabitant of some of the northern provinces of Asia, to which Europeans have little access For its agricultural varieties and their respective qualities, see OAT.

The Tartarian oat is considered a distinct species, on account of its more compact and one sided panicle, and of both its florets having a beard, it is, however, doubtful if it can be regarded as any thing more than a variety of *A. sativa.* Botanists call it *A. orientalis*, but its native country seems as uncertain as that of the last.

The naked oat, *A. nuda*, so called because its grain is loose in the husk, is found wild in many parts of Europe, and by some is thought to be a mere degeneration of the common oat. It is common in Austria, where it is cultivated for its grain, which is, however, small and not much esteemed.

The Chinese oat, *A. Chinensis*, is another species, the grain of which is loose in the husk; it is said to have been procured by the Russians from the north of China along with their tea This species is the most productive of all the known kinds, every flower producing from three to five grains, which are large and of excellent quality. It is, however, said to be difficult to harvest on account of the grains not adhering to the husks, but being very easily shaken out. It is probable that this is the kind in praise of which so much has been lately said in the English and Irish newspapers, where it is spoken of under the strange name of *avenacea farina.*

Besides the species cultivated for the corn which they yield, there is another that deserves to be noticed, on account of its remarkable hygrometrical action. This plant, the animal oat of gardeners, the *A. sterilis* of systematic writers, is something like the common oat when young, but when ripe, its grains are inclosed in hard, hairy, brown husks, from the back of which rises a stout bent and twisted awn; usually two such husks grow together, and separate from the stalk by a deep oblique scar. Taking the scar for the head of an insect, the husks with their long stiff brown hairs resemble its body, and the two bent awns represent its legs. In this state fishermen use a smaller but nearly allied species, called *haver* (*A. fatua*), instead of artificial flies for catching trout. When the animal oat is ripe it falls out of its glumes, and in warm dry weather may be seen rolling and turning about on its long ungainly legs, as they twist up in consequence of their hygrometrical quality. It necessarily advances as it turns over, because the long stiff hairs upon its body catch against every little projecting point on the surface of the soil and prevent its retreat. Nothing can be more curious than to see the path of a garden-walk covered with these things tumbling and sprawling about in different directions, until their awns are so twisted that they can twist no further. They then remain quiet till the dews fall, or they are moistened by a shower, when they rapidly untwist and run about with renewed activity, as if they were anxious to get out of the way of the wet.

For *A. flavescens*, a grass employed in agriculture, see TRISETUM.

AVENBRUGGER, LEOPOLD, a physician of the last century, was born at Graetz, in Styria, in the year 1722. He studied medicine and graduated at Vienna, where he practised, and became physician in ordinary to the Spanish nation in the Imperial Hospital of that city. In 1761 he published a treatise, entitled *Inventum Novum*, in which he made known his discovery of an application of the laws of acoustics, or of sounds, to the investigation of the phenomena or action of the internal parts of the human body, particularly the cavities of the chest and abdomen. It was translated out of the original Latin into French by Rozière, in 1770, and again by Corvisart in 1808, accompanied with notes and comments. It has since been translated

into English by Dr Forbes of Chichester, along with a selection of Corvisart's comments. This translation is entitled *Original Cases*, by John Forbes, M.D., London, 1824. This method is termed *Percussion*.

Avenbrugger wrote a work on Madness in Latin, 1776, and another work in German, published in 1783; he died in 1809. These last works are not much known, and even his first, though announcing a most valuable discovery, of vast importance in the examination of the various diseases of the chest and abdomen, attracted little attention till Corvisart translated and illustrated it in his practice and writings. It is now appreciated as it deserves to be. [See AUSCULTATION.]

AVENS. [See GEUM.]

AVENTINE HILL. [See ROME.]

AVENTINUS, JOHANN TOURMAYER, the son of a publican, was born at Abensberg, in Bavaria, in 1476. He studied at Ingolstadt, and afterwards at Paris, where he took the degree of Master of Arts; he afterwards taught eloquence and poetry at Vienna, and Greek and mathematics at Cracow. In 1512 he was called to Munich by the Duke of Bavaria, who entrusted him with the education of his two sons. He then wrote in Latin, his *Annales Boiorum*, or History of Bavaria, which is much esteemed. In this undertaking he had access to the best sources of information, as the various archives, and the libraries of convents, &c., were opened to him. The work was first printed in 1554, after the author's death; but the editor, Ziegler, suppressed some passages, which however were restored in the edition of 1580 by Cisner. Several other editions have been published: that of Leipzig, 1711, by Gundling, is considered the best. It has also been published in German, but abridged. Aventinus wrote several other learned works, among the rest '*Numerandi per digitos manusque, quin etiam loquendi, veterum consuetudinis*,' Ratisbon, 4to, 1523. He conceived the idea of this work from some tables which he found at Ratisbon, representing the ancient manner of the Romans of counting on their fingers, which custom is still continued in Southern Italy. '*Vita Henrici quarti Imperatoris cum epistolis ejusdem*,' 4to, 1518. This work is very rare. Aventinus died in January, 1534.

AVENZOAR, or AVENZOHAR, is the name of two Arabian physicians, father and son, who flourished in Spain during the twelfth century. They were Jews by descent and religion. The first and most celebrated of them is Abimeron Avenzoar, or, with his complete name, and correctly written, Abu Merwan Mohammed ben Abdalmelic ben Zohr. According to Ebn Alabar, an Arabian author quoted by Casiri (*Biblioth. Escur.* t. ii. p. 132), he was a native of Seville (according to others of Peñaflor, near Seville), and lived as physician at the court of Ibrahim ben Yûssuf ben Tashfin, the Almoravide sovereign of Morocco and Cordova. He died, according to the same authority, at Seville, in the year 557 after the Hegira (A.D. 1162). He is the author of several works on medicine which have long been held in high esteem. The most important of them is the *Taisir*, or 'Introduction,' a Latin translation of which, made from an intermediate Hebrew version, has been printed repeatedly—for the first time by Joannes de Forlivio and Gregorius, at Venice, in 1490, along with the *Colliget* of Averroes, and with the following inscription:— *Incipit liber theicrisi* (?) *dahalmodana vahaltadabir, cujus est interpretatio Rectificatio medicationis et regiminis, editus in Arabico a perfecto viro Abumaruan Avenzohar, et translatus de Hebraico in Latinum Venetiis a magistro Paravicio, ipso sibi vulgarizante magistro Jacobo Hebraeo, anno Domini Jesu Xti 1281*. In the subsequent editions the title of the work is more correctly printed *Theizir*, but the author's name is variously disfigured: the Venice edition of 1542 spells it Abimeron Abynzoahar, Ablymeron Abinzohar, and Abynmeron Abyçohar; another, printed in 1553, has Abimeron Abynzohar. A manuscript of the Arabic original of this work, besides a treatise on simple and compound medicines, which is likewise attributed to Avenzohar, is said to exist in the Bibliothèque du Roi, at Paris. Latin translations of several other works attributed to Avenzohar are enumerated by Nic. Antonius, among them we notice a treatise *De cura calculi*, printed at Venice, 1497; and another, *De regimine sanitatis*, Basil, 1618. Sprengel, after giving an account of the *Taisîr*, proceeds to observe that Avenzohar has done less to improve the theory than the practice of medicine. 'Contrary to the custom of his countrymen, he was a declared enemy of sophisms and dialectic subtleties. Following the plan of his father, he intrusted himself to no other guide but experience; but in doubtful cases had often recourse to Galenus. He was not free from prejudice, and his practice sometimes approached to empiricism.' (*Hist. de la Médecine*, trad. par Jourdan, t. ii. p. 335.) Avenzohar was the teacher of the celebrated Averroes.

The younger Avenzohar, who is also named Rhasis (but must not be confounded with another Arabian physician of that name, Mohammed ben Zacaria al-Razi, who died A.D. 922), was the son and pupil of the former. It appears that after the death of his father, and in consequence of a persecution, he quitted Spain and went to the court of Mansur, the Almoravide sovereign of Marocco, who received him with great honours, and appointed him his physician. He died in Marocco, at the age of seventy-four years, A. HEG. 594, A.D. 1197. According to the testimony of Joannes Leo Africanus, he wrote, like his father, several works on medicine, among others one on the treatment of the eyes. Nic. Antonius observes that of several books which have the name of Avenzohar, it is doubtful whether they should be ascribed to the father or to the son. (Nic. Antonii, *Bibliotheca Hispana Vetus*, t. ii. p. 232, 233; Hottinger, *Bibliothecarius*, p. 269, 271; Sprengel, *Histoire de la Médecine*, t. ii. p. 332-337; Casiri, *Bibliotheca Escurialensis*, t. ii. p. 232.)

AVERAGE is a quantity intermediate to a number of other quantities, so that the sum total of its excesses above those which are less is equal to the sum total of its defects from those which are greater. Or the average is the quantity which will remain in each of a number of lots, if we take from one and add to another till all have the same, it being supposed that there is no fund to increase any one lot except what comes from the reduction of others. Thus, 7 is the average of 2, 3, 4, 6, 13, and 14; for the sum of the excesses of 7 above 2, 3, 4, and 6, that is, the sum of 5, 4, 3, and 1—is 13, and the sum of the defects of 7 from 13 and 14, that is, the sum of 6 and 7, is also 13. Similarly, the average of 6 and 7 is 6½. To find the average of any number of quantities, *add them all together, and divide by the number of quantities*. Thus in the preceding question, add together 2, 3, 4, 6, 13, and 14, which gives 42; divide by the number of them, or 6, which gives 7, the average.

It must be remembered that the average of a set of averages is not the average of the whole, unless there are equal numbers of quantities in each set averaged. This will be seen by taking the average of the whole without having recourse to the partial averages. For instance, if 10 men have on the average 100*l.*, and 50 other men have on the average 300*l.*, the average sum possessed by each individual is not the average of 100*l.* and 300*l.*, for the 10 men have among them 1000*l.*, and the 50 men have among them 15,000*l.*, being 16,000*l.* in all. This, divided into 60 parts, gives 266*l.* 13*s.* 4*d.* to each. A neglect of this remark might lead to erroneous estimates, as, for instance, if a harvest were called good because an average bushel of its corn was better than that of another, without taking into account the number of bushels of the two.

The average quantity is a valuable common-sense test of the goodness or badness of any particular lot; but only when there is a perfect similarity of circumstances in the things compared. For instance, no one would think of calling a tree well grown because it gave more timber than the average of all trees; but if any particular tree, say an oak, yielded more timber than the average of all oaks of the same age, it would be called good, because if every oak gave the same, the quantity of oak timber would be greater than it is. It must also be remembered that the value of the average, in the information which it gives, diminishes as the quantities averaged vary more from each other; but this and other points connected with averages will be mentioned more fully in the article MEAN, this being the mathematical word which is used in the same sense as average in common life.

AVE'RNO, a lake in the neighbourhood of Naples, about two miles and a half N.W. of Pozzuoli, and near the coast of the gulf of Baiæ. It is a circular sheet of water, about a mile and a half in circumference; the water clear, and of great depth, surrounded with high banks, which are covered with vineyards and gardens. On the south-eastern side is a break through this high margin, where formerly was a channel communicating with the Lucrine lake. The scene, though secluded, is serene and pleasing, very different from the gloomy descriptions found in antient poets, and even historians, of the impervious darkness and foul mephitic emanations of this lake, near the shores of which the Cimmerians, a people who lived in places where the sun never

shone, once resided, according to fabulous tradition. It is likely, however, that when the surrounding banks were thickly covered with forest trees overhanging the water, it may have had a much gloomier appearance than at present; but the trees had been cut down even before Strabo's time, and the sides of the hills partially cultivated. The story of the mephitic exhalations which killed the birds that attempted to fly over the surface of the lake (Virgil, b. vi.), (a phenomenon which gave rise to the Greek name of Aornos, 'without birds') although evidently exaggerated, may at one time have had some foundation in truth, as the whole of this region is of volcanic formation, and emits volcanic exhalations; indeed, the lake itself is the crater of an extinct volcano. Hannibal is reported by Livy (xxiv. 12) to have visited the banks of Avernus, under the pretext of sacrificing, but in fact with other views. But in the time of Virgil, a communication was opened between Avernus and the neighbouring lake Lucrinus, which, itself communicating with the sea, was converted by Agrippa into a fine harbour, called Portus Julius. The Lucrine lake was filled up by an eruption which took place in 1538, when a conical mountain rose in its place, which is called Monte Nuovo. Averno has thus become again a separate lake; and a small muddy pool half filled with reeds, and close to the sea-coast, is all that remains of the famed Lucrinus. On the south-eastern bank of Averno stands a large and lofty octagonal building of brick, vaulted, and with niches in the walls, supposed by some to have been a temple, and by others a bath; it is now surrounded by vine trees. Farther to the westward is the entrance to a subterraneous passage, called Grotta della Sibilla; it divides into two galleries, one of which opens to the neighbouring sea-coast near the pool of Lucrinus, and the other branches off to the right in the direction of Cuma, which place it once reached: Strabo informs us that it was made by Cocceius, under the direction of Agrippa. This last passage has become obstructed by the falling in of the earth. There are several mineral springs in the immediate neighbourhood of the lake of Averno, some of which are used as baths. The most celebrated are the baths called the Baths of Nero, which are close by the sea-shore, and consist of galleries worked through the rock, and terminating in a fountain of hot water strongly impregnated with sulphur, so hot as to boil eggs immersed in it, and the vapours of which fill up the whole place. Persons resort here for the purpose of taking vapour-baths, the efficacy of which in several complaints has been ascertained. The ruins of Cuma are about one mile west of Averno. The air of the country about Averno and the Lucrine pool is unwholesome in summer. (See Strabo, p. 244; and BAIÆ.)

AVE'RRHOA, a genus of plants belonging to the wood-sorrel tribe (*Oxalideæ*). It consists of two species, both of which form small trees in the East Indies. They are remarkable for their leaves, which are pinnated, possessing, in a slight degree, the kind of irritability found in the sensitive plant, and for their fleshy oval fruits with five thick longitudinal wings. From the other genus of *oxalideæ* they are known by this character, independently of all others.

In the carambola (*A. carambola*), the leaves are smooth, the flowers of a violet purple, and the fruit about the size of a goose's egg; it is of a pale yellow colour, and is said to be agreeably acid in the East Indies. It was expected that it would prove worth cultivating in the hothouse for the dessert, but it proves upon trial to be insipid, and far inferior to the common fruit of the European markets.

The other species, called the beimbing (*A. bilimbi*), has downy leaves, and fruit resembling a small cucumber. The latter is intensely acid, and cannot be eaten raw. It is pickled or candied, or a syrup is obtained from it by boiling with sugar, and its juice is found an excellent agent for removing iron-moulds or other spots from linen. To the Malays it answers the same purposes as the citron, the gooseberry, the caper, and the cucumber of Europe.

AVERROES, or **AVERRHOES**, properly **EBN ROSHD**, or, with his complete name, **ABUL-WALID MOHAMMED BEN AHMED BEN MOHAMMED BEN ROSHD**, was an Arabian philosopher and physician of great celebrity, who lived during the latter part of the twelfth and the beginning of the thirteenth century. He was born in A.D. 1149, at Cordova, where his father filled the high office of mufti or chief judge and priest of Andalusia. Some of the most distinguished Arabian scholars of the age are mentioned as his teachers. He studied Mohammedan jurisprudence under the guidance of his father; theology and philosophy under Ebn Sayeg (Aven Pace) and Tofail; and medicine under Avenzohar, the father. His diligence was indefatigable: he devoted the greater part of his time to the study of philosophy and medicine, and turned to the perusal of works of history or poetry only by way of recreation. As a Mussulman theologian, Averroes adopted the creed of the Ash'ari sect, the main principle of which is, that God, being the universal cause of every thing, is also the author of all human actions; but that, nevertheless, men being free, either acquire merit or incur guilt according as they obey or disobey the precepts of religion. Averroes at first succeeded his father as mufti of Andalusia, and at the same time delivered lectures at Cordova. He was afterwards appointed chief judge of Mauritania; but Avenzohar the younger, the son of his preceptor, charged him, at the court of Mansur, the Muwahhedite sovereign of Marocco and Spain, with having expressed heretical opinions. Averroes lost his office and was summoned to Marocco, where he was forced publicly to recant the heretical doctrines which he was accused of having propagated. He was then dismissed, and went first to Fez, and afterwards to his native town Cordova. But the judge who had succeeded him in Mauritania gave so little satisfaction, and public opinion was so strongly expressed in favour of Averroes, that he was ultimately reinstated in his former office, which he continued to fill till his death. He died, according to Casiri (*Bibliotheca Escurialensis*, vol. i. p. 184), in the year 595 after the Hegira, A.D. 1198, according to Leo Africanus (quoted by Hottinger, *Bibliothecarius quadripartitus*, p. 279) in A. HEG. 603 (A.D. 1206). Two of his sons are said to have visited the court of the German emperor Frederic II.

Averroes entertained the highest respect for Aristotle, whom he regarded as the greatest of all philosophers, though in studying and translating his works he seems to have placed too much reliance on his commentators, Ammonius, Themistius, and others. The works of Averroes were numerous. Casiri notices a list of them which he found among the oriental manuscripts of the library in the Escurial, and which specified not less than seventy-eight distinct treatises. Many of them were early translated into Latin, and studied by the schoolmen. An edition of Averroes in Latin was published at Venice, 1562, in eleven volumes, folio. We are not aware of any of his works being published in the Arabic original. His commentaries on Aristotle and on the *Republic* of Plato seem to be the most generally known; but he composed likewise original treatises on philosophical subjects, and on Mohammedan theology and jurisprudence. Among his medical works, the *Kulliyat* (*i. e.* 'The Total,' or Comprehensive System) is the most important, a Latin translation of which, commonly called the *Colliget Averrois*, has been repeatedly printed along with the *Taisir* of Avenzohar, for the first time (it seems) at Venice, by Joannes de Forlivio and Gregorius, A.D. 1490, fol. It is divided into seven books, the headings of which we subjoin, as they will give some idea of the arrangement of the work:—1. *De Anatomia.* 2. *Liber sanitatis.* 3. *Liber ægritudinum.* 4. *Liber signorum.* 5. *Liber medicinarum et ciborum.* 6. *De regimine sanitatis.* 7. *De curatione ægritudinum.*

(See Nic. Antonii, *Bibliotheca Hispana Vetus*, t. ii. pp. 240, 248; Hottinger, *Bibliothecarius quadripartitus*, Figuri, 1664, 4to. p. 271-279; Sprengel, *Histoire de la Médecine*, trad. par Jourdan, vol. ii. p. 337-340.)

AVE'RSA, a town in the province of Terra di Lavoro, in the kingdom of Naples, situated in a fertile plain eight miles N. by W. of Naples, and on the high road to Rome, in 40° 57′ N. lat., and 14° 11′ E. long. Aversa was built in 1020 by Rainulph, a Norman chief, who first settled in this country as auxiliary to the Lombard princes of Capua and Salerno. The Norman adventurers made it a stronghold, for the purpose of keeping in check their Lombard friends as well as their Greek enemies. The new town soon after received an increase of population by fresh arrivals of adventurers from Normandy, attracted by the report of Rainulph's success. The emperor Conrad, in 1038, made Rainulph count of Aversa and its territory. The county was afterwards merged in the new Norman kingdom founded by the offspring of Tancred of Hauteville. Aversa, although occasionally injured by foreign invasions and civil wars, still maintained its rank as a town of considerable importance. It is now a bustling, lively place, with about

13,000 inhabitants, and its appearance gives the traveller who first visits this country a prelude to that peculiar and noisy sort of gaiety which characterizes Naples. The kings of Naples had formerly a castle here, which served as a palace for their occasional residence: it was replaced by a convent, in which Andreas of Hungary, husband of Queen Joanna I., was strangled by some conspirators on the 8th September, 1345. From Aversa a fine broad avenue leads to Naples. The most remarkable object at Aversa is the house for the insane, established by the well-known philanthropist Linguiti, not many years since, and directed by him. The treatment of the patients is kind, cheerful, and ingenious; they are occupied in various pursuits congenial to their respective tastes; they have music, a fine garden, and other amusements. This establishment has served as a model for another of a similar nature lately founded at Palermo. Aversa is a bishop's see, one of the richest in the kingdom. The territory of Aversa is very fertile in corn, grapes, fruit, &c. It contains many large and populous villages, among which Sant Elpidio, about three miles S.E. of Aversa, is built close to the site where the antient Atella formerly stood. [See ATELLANÆ FABULÆ.] The sweetmeats of Aversa, especially a sort of almond-cake called *torrone*, are in great repute at Naples.

AVES, a small island 125 miles W. by S. from Guadaloupe, and remarkable from its detached position; it is three-quarters of a mile long, very low, and has only a little grass growing on it. It is much resorted to by birds, and has a white appearance from their dung; the Dutch, from Saba and St. Eustatius, visit this island to gather eggs and catch turtle. Fresh water may be obtained by digging. It is in 15° 40′ N. lat., and 63° 38′ W. long.

There is also a cluster of small islands bearing the same name lying 30 miles W. by N. of the Roccas, and 35 E. by S. of Buenos Ayres. They are composed of two groups of islets rising on distinct reefs ten miles apart, two larger islands and three smaller ones; they are quite barren and uninhabited, and surrounded by dangerous reefs, especially to the northward, where they run off five miles. They lie in 12° N. lat., and between 67° 30′ and 67° 18′ W. long.

AVESNES, or AVESNE, a fortified town of France on the south or left bank of a small river, La Grande Helpe, which flows into the Sambre below Landrecies. Avesnes is 123 miles N.E. of Paris, on the road to Mons and Brussels. Though the capital of an arrondissement, it is a small town, not having much above 4000 inhabitants: but it has establishments for refining salt, manufacturing soap, and especially tanning leather. It carries on a trade in wood and in boars' heads. Before the revolution the church was collegiate, and there were two religious houses, a high-school, and an hospital. Whether the last two establishments still exist, the authorities which we have consulted do not inform us.

The interior of the town is ill built, and the streets are ill-arranged. The fortifications were repaired and strengthened by Vauban.

Avesnes was founded in the eleventh century. It came into the hands of the kings of Spain of the Austrian family, and was ceded to France by the treaty of the Pyrenees in 1659.

The arrondissement is separated from the rest of the department by the hills which bound the upper part of the basin of the Sambre. Many iron works, potteries, and glass-houses are scattered over it. Its population in 1832 was 127,353.

AVEYRON, or AVEIRON, a river in the south of France; one of the many whose waters ultimately swell the stream of the Garonne. It rises in the department of Aveyron, in the branches of the Cevennes, near the town of Severac, and flowing towards the west, receives, on the right bank, the little river Serre; after which it continues its course to Rodez, or Rhodez, the capital of the department. Near that town it winds very much. From Rhodez it flows on, still to the westward, without receiving any material accession, until it reaches Villefranche, where it receives another small river on the right bank, the Alsou. From Villefranche it turns southward to Najac. Below this town it receives the little stream of the Serene on the left, and just below on the same side, the larger river, the Viaur. This last rises from the same ridge as the Aveyron, not far from the springs of the latter, and pursuing, like it, a western course, joins it at the place mentioned above. After the junction, the stream of the Aveyron turns again to the west, and falls into the Tarn (a feeder of the Garonne), a little above Moissac. The dimensions of this river, as measured on the *Map of France* published by the Society for the Diffusion of Useful Knowledge, are as follows:— From the source to the junction of the Serre, about 14 or 15 miles; from thence to Rhodez, 25 or 26 miles; from Rhodez to Villefranche, 45 miles; from Villefranche to the junction of the Viaur, 17 or 18 miles; and from thence to the junction of the Aveyron with the Tarn, 52 or 53 miles; making the whole length about 155 miles. The length of the Serre is about 20 miles; that of the Alsou about 25 miles; and that of the Viaur about 80 miles. The *Dictionnaire des Gaules*, &c. of Expilly, gives the length as 36 leagues, which is about 100 miles; but the measurement on the map is in all probability more correct.

The current of the Aveyron is very rapid, and it frequently overflows its banks. The navigation commences at Negrepelisse, about 20 miles above the place where the river falls into the Tarn. The Roman name of the Aveyron seems to be unknown.

AVEYRON, a department in France taking its name from the river Aveyron, which rises within its boundary, and traverses it in a direction for the most part east and west. The department is bounded on the N. by that of Cantal; on the N.E. by that of Lozère; on the E. by that of Gard; on the S.E. by that of Hérault; on the S.W. by that of Tarn; on the W. by that of Tarn et Garonne; and on the N.W. by that of Lot. In form it is nearly quadrilateral, having its sides facing the N.E., N.W., S.E. and S.W. The N.E. and S.W. sides are the longest, being each of them about seventy-five miles in length: the N.W. side is sixty-three miles, and the S.E. thirty-two; measured on the *Map of France in Departments* published by the Society for the Diffusion of Useful Knowledge. The diagonals of this quadrilateral are—one (drawn nearly from N. to S.), ninety miles, and the other (drawn from W.N.W. to E.S.E.) eighty-four miles.

The area of the department is about 3400 square miles; it ranks fifth among the departments of France in point of size, and is only about 50 square miles less than the two English counties of Norfolk and Suffolk. The population in 1832 was about 360,000, which gives nearly 106 to the square mile.

The western part of the department is the lowest, and contains some plains of considerable extent. The eastern part is mountainous, being traversed by branches from the chain of La Margeride, which unites the mountains of Auvergne with the Cevennes; the Cévennes themselves form the south-eastern border. From these two ranges of mountains flow the streams which traverse the department, some having their source within the boundary line, others beyond it; their general direction is from E. to W. The Truyère, entering near the northern extremity of the department from that of Cantal, runs for some distance nearly parallel to the N.W. border to the town of Entraygues, where it unites with the Lot, which, entering about the middle of the N.E. border of the department from that of Lozère, runs W.N.W. till it meets the Truyère: their united waters then flow towards W. by S., separating for some distance this department from that of Lot. Several small streams flow from the mountains of Aubrac (one of the branches of Margeride), which lie between the Truyère and the Lot: the Selve and Selvet (united), into the former river; and the Merdanson, the Mossau, the Bouralde, and the Coussonne, into the latter. The Lot becomes navigable upon its receiving the waters of the Truyère, and lower down receives the Dourdou and the Dieges from the interior of the department. The course of the Aveyron itself has been described; it only needs to be added that its principal tributary, the Viaur, receives successively the waters of the Aictou, the Seor (augmented by the Gifou), and the Lezert. The Tarn, entering the department on the N.E. boundary (it comes from the department of Lozère), crosses it in a direction nearly parallel to the range of the Cévennes (which forms the S.E. boundary), and some distance from it. This river also receives several tributaries, chiefly on its left bank, as they flow from the Cévennes: they are the Dourbie, the Cernon, or Ternon, the Dourdou (which receives the Sorgues), and the Rance. The Tarn is not navigable till after it leaves this department.

The three principal rivers, the Lot, the Aveyron, and the Tarn, divide the department into four parts. The most

northern, bounded by the Lot, is occupied by the mountains of Aubrac, which have been already mentioned, and which extend more than thirty miles in length. They are subject in winter to heavy falls of snow, which penetrate the ill-built habitations of the country people. The winter is long, and it is not till the beginning of May that the fields become green; but the mountains soon present the most beautiful verdure, and flocks and herds assemble from other parts of the department, where a scarcity of grass is felt. The pastures are divided into 'mountains,' and the extent of these is designated by the number of animals for which they are sufficient--as 'a mountain of thirty or forty cows' (*montagne de trente, de quarante vaches*). From the milk of the herds cheese of good quality, called Guiolle cheese, is made. The cattle are not turned out to pasture in winter. Of grain this district produces only rye, oats, and buck-wheat (*sarrasin*). September is the month of harvest, but it is often prolonged into October. In summer, the mountains, rising in the form of an amphitheatre one above another, and covered with a rich turf freshened by a thousand rills, present a beautiful prospect. The air is unfavourable, except to those who are habituated to it. The valleys contain many villages, and even some small towns (*bourgs*). The inhabitants carry on trade in cattle and cheese. Those of the territory of Guiolle, the principal place in the district, exchange the surplus of their oats for the wines of the department of Lot. When wine is dear, they are peaceable and well-behaved; but when the vintage is abundant, quarrels frequently arise, which are so much the more dangerous, as nearly all the inhabitants are accustomed to carry a small dagger. Fruit-trees are almost unknown.

These mountains are of volcanic origin; and between Guiolle and the village of Naves basaltic columns of various forms may be observed. (*Encyclopédie Méthodique, Géographie Physique*, art. *Aubrac.*)

The district bounded by the Lot on the one hand, and the Aveyron on the other, contains the principal mineral wealth of the department. Near Albin, or Aubin, a small town about four miles from the left bank of the Lot, are coal-mines of considerable importance. The coal is used for fuel in the neighbourhood, and supplies many of the forges in the department: a considerable quantity is also sent to Bordeaux. The coal appears to form one immense mass, containing several strata, mostly inclined at an angle of 45°. It is covered with a decomposed vegetable soil, rising in the form of round-backed hills, and sends out its seams to the surface in the form of a coaly slate (*schiste carboneux*). The abundance of the mineral, and the ease with which it may be obtained, have led to a very negligent and inartificial manner of working it. Individuals commence mining in the simplest way, and abandon their works when they cease to yield a profit, or when the water bursts in *.

In the midst of the coal district of Albin are the mineral waters of Cransac, which are in good repute, and much resorted to. Near these waters is the burning mountain of Fontaynes, where a mass of coal, which in former days was set on fire by some accident, continues burning. An elliptical opening in the earth, like the crater of a volcano, renders the combustion visible at night to those who can sufficiently brave the heat and smoke to approach it. The plants near the opening are languid and unhealthy. Fine ochre, pyrites, rock crystal, and marble, are found in the same district. Of the two alum mines in the department, one is at Fontaynes, near Albin. The produce of these works finds a sale in the departments of Hérault and Cantal, and in the interior of that of Aveyron. Copperas is procured from the alum mine of Fontaynes.

Between the sources of the Aveyron and the Tarn rises the group of mountains of Levezou. The principal range runs from N.E. to S.W., and sends out many branches. One of these branches runs along the left bank of the Aveyron, towards which it has an almost perpendicular descent, and is nearly a desert. On the other side it has a gentler slope, and at the bottom of this slope are villages and habitations. The mass of these mountains is composed of gneiss and schistus; but at the village of St. Bauzely these are succeeded by calcareous strata, which extend to the shore of the Mediterranean. The district of the Levezou is one of the least populous and least civilized districts of the department. The climate is rigorous, and the soil barren. Small widely-scattered patches of cultivated land produce oats and rye; but it is said that the former degenerate. The pastures are covered with fern, and broom (*fougères* and *genêts*), and prickly shrubs. It is only in the valleys that trees grow: the cattle and sheep are lean and miserable, and the ewes and cows yield little milk, and that little of inferior quality. Their flesh also is poor. In the quality of its vegetable and its animal productions, this district forms a marked contrast to the district of Aubrac. The snow falls in great quantity, and melts slowly. Sometimes the wind separates the flakes into particles as fine as dust, and it then penetrates by the smallest openings into the houses.

Towards the eastern extremity of the district south of the Tarn, in the neighbourhood of St. Jean de Bruel, the Cévennes mountains yield an abundance of excellent slates, good plaster or gypsum, and a kind of fullers' earth. A little west of this part, between the rivers Dourbie, Cernon, and Sorgues, rises the elevated plain of Larzac or Larjac, between 2400 and 2500 feet above the level of the sea. It is sustained on the S.E. and S.W. by the Cévennes and the mountains of Caune, and overlooks the valley of the Tarn on the one hand, and that of the Hérault on the other. It is covered with huge square blocks of calcareous stone, black and hard at the top, and white and friable at bottom, which some geologists have supposed to be the relics of superincumbent strata. These blocks, which have neither moss nor lichen on them, present at a distance the appearance of human habitations. This plain, where the traveller may pursue his way and not meet with a house, or a tree, or a brook, for several miles, furnishes pasturage to vast flocks of sheep. The dryness of the atmosphere, and the aromatic plants which abound, sage, thyme, and lavender, impart great delicacy of flavour to the mutton fed here, and render the wool superior to that of almost any other department. It is fine and silky, like that of the sheep of the department of Pyrénées Orientales; but at the same time so greasy as to lose half its weight by washing. The choicest fleeces are sent to Elbeuf and other manufacturing towns in the northern part of France. The similarity of climate, vegetable productions, and soil, which exists between this district and the higher districts of Spain, point it out as a suitable place for the naturalization of the Spanish sheep.

From the village of Roquefort in this neighbourhood, the Roquefort cheese derives its name. It is made of ewes' milk, and is very delicate: a little goats' milk is added in many places, but the least quantity of that of the cow would alter the quality of the cheese. The ewes are of a breed closely resembling the merinos. They yield abundance of milk: and it is stated that 100,000 of them furnish the supply for making the Roquefort cheese. It is laid up in cellars, built up against the hill upon which the village stands, but not dug in it. The temperature of these cellars (about 54° or 55° of Fahrenheit) varies little all the year round; and the cheese stored here acquires that peculiar flavour which distinguishes and recommends it. It was in great repute eight hundred years ago; and is still exported into most countries in Europe. The village has not more than 300 or 400 inhabitants; but they export yearly 15,000 to 18,000 cwts. Some cheese, sold under the name of Roquefort, is made at Milhau.

Some beds of coal are worked in the district of Larzac.

The atmosphere of the department is generally pure, and the sky clear; but the temperature varies considerably in different parts. The snow remains on the mountain-tops half the year. The winds are so violent as sometimes to unroof the houses and blow down large trees. The prevalence of the south wind gives to the branches of the trees a general direction towards the north. This wind brings rain to the southern districts of the department; as the west wind does to all the others.

The quantity of waste land is more than one-third of the surface. The principal wealth of the department, as may be inferred from the foregoing account of particular districts, consists of cattle and stock of all kinds; horses, mules, oxen, sheep, goats, and swine. The number of sheep was given in the *Géographie Universelle* of M. Malte Brun (see last edition, Paris, 1832, et seq.) at above 600,000. Mules, for export to Spain, are reared in considerable numbers. The valleys of the several rivers are filled with rich alluvial soil; and the grain raised is sufficient for the consumption of the department; wheat, however, is not much

* It should be observed, that the authority for this statement, the *Encyclopédie Méthodique*, was published in 1803; perhaps thirty years may have brought in more skilful methods.

cultivated. Wine, which, for the most part, is of ordinary quality, is made only in the eastern districts. A considerable number of mulberry-trees are grown for the silk-worms. The sides of some of the mountains are covered with vast forests. Wolves sometimes attack the herds; but the cows instinctively range themselves round the stalls and repel them with their horns: sometimes they even pursue them. The *Dictionnaire Universel de la France* (Paris, 1804-5) speaks of iron and copper mines; but Malte Brun (*Géographie Universelle*) says that the metals of the department are still unworked, and he adds that the produce of the coal and alum mines might be vastly increased. Besides the mineral waters of Cransac, already noticed, there are warm baths at Silvanès, in the mountainous district between the Sorgues and the Doundou. Their temperature is 40° of Reaumur, or 122° of Fahrenheit.

Silks, woollens (especially serge, linsey woolsey, and grey cloth), and paper, are manufactured. The streams, especially the Lot and the Tarn, furnish the moving power for the machinery of the factories: and after their navigation commences, they also facilitate the conveyance of goods.

The chief places are as follows:--The capital, Rodez or Rhodez (a name derived from that of the people, the *Ruteni*, who inhabited the country before the Roman conquest), is on the Aveyron, and is a city of about 8000 inhabitants. Milhau, on the Tarn, has about 10,000 inhabitants in the commune, and nearly 9000 of them in the town itself. St. Afrique, on the Sorgues, has a population of 6300, of whom 1600 are in the town; Villefranche, at the junction of the Alson with the Aveyron, has about 9500 inhabitants, of whom above 7000 live in the town itself; and Espalion, on the Lot, has more than 2000 in the town, and 3500 in the commune. These are all the seats of sub prefectures. [See ESPALION, MILHAU, RHODEZ, and VILLEFRANCHE.] The communes are the smallest municipal divisions; and, in extent, may be compared with our parishes.

St. Afrique having been omitted in its proper place, we shall give a short account of it here. It was, early in the seventeenth century, in the hands of the Calvinists, and was then more populous, and had a more flourishing trade than since. It stood a siege against the royal army in 1628, but was afterwards obliged to submit to Louis XIII., and from that period its decay may be dated. Some cloths and frieze are made here, but the trade of the place is scarcely of any extent; and except its rank as capital of an arrondissement it has few claims to notice. The town is surrounded with fine walks, and is situated in the midst of orchards, meadows, and vineyards. The streets are crooked and the houses antique. An hospital and the reformed church are the only buildings worthy of notice.

To the towns mentioned above, we may add St. Geniez d'Olt, or St. Geniez de Rivedolt, on the right or south bank of the Lot, a neat and small town of 1000 people who manufacture woollen stuffs: it was the native place of the Abbé Raynal. Severac le Château is built on a conical hill, and is commanded by an antient castle: it has a population of 2000. Entraygues, at the confluence of the Truyère and the Lot, where the navigation of the latter river commences, carries on a considerable timber trade, and was formerly a place of some consequence as a fortress. La Guiolle, on the little river Selve, has 2000 inhabitants, who manufacture cloth and worsted stockings. It is on the slope of a basaltic mountain above 3500 feet high. Valres, an insignificant place very near St. Afrique, was a bishopric up to the time of the French Revolution.

This department constitutes the diocese of Rhodez; the bishop is a suffragan of the archbishop of Alby. It is under the jurisdiction of the cour royale (assize court) of Montpellier, and is in the ninth military division, the head-quarters of which are at Montpellier. It returns five deputies to the Chamber.

It nearly coincides with the antient district of Rouergue, a sub-division of the province of Guienne. (*Encyclopédie Méthodique, Géographie Physique*, art. *Aveyron*; MM. Malte Brun et Balbi, *Dictionnaire Universel de la France*.)

AVICENNA, named **ABEN SINA** by Hebrew writers, but properly **EBN SINA**, or, with his complete name, called **AL-SHEIKH AL-RAYIS ABU ALI AL-HOSSEIN BEN ABDALLAH BEN SINA**, was a celebrated Arabian philosopher and physician, whose name has ruled in the realm of science during a longer period than that of any other writer, with the exception of Aristotle and Galen. He was, according to the biographical dictionary of Ebn Khallican, born at Kharmatain, a village near Bokhara, in the year 370 after the Hegira (A.D. 980). Soon after his birth his parents removed to Bokhara, and in this town Avicenna received his first education. Ebn Khallican informs us, that when he had reached his tenth year, he was thoroughly versed in the study of the Koran, and knew something of the elements of Mussulman theology and of Hindu arithmetic (*hisab ul Hind*) and algebra. About this time Abu Abdallah Al-Natheli, a scholar of some note among his contemporaries, came to Bokhara and Avicenna was placed under his tuition. He studied under him logic, Euclid, and the Almagest. When Al-Natheli left Bokhara, Avicenna, then about sixteen years old, began to turn his attention to the study of medicine, but soon interrupted his medical pursuits to devote another year and a half to a course of philosophical study. In an autobiographic memoir of Avicenna, which has been preserved by Abulfaraj, he informs us, that so great was the zeal with which he devoted himself to his studies, that during two years he never went to sleep at night: if he was unable to find the solution of an intricate problem, he went to the mosque to pray, and then seldom failed to overcome the difficulty. We are assured that even before he had reached his eighteenth year, he cured the Samanide Sultan of Bokhara, Nûh ben Mansur (who reigned A.D. 975-997) of a dangerous disease. In his twenty-first year he wrote a work which Casiri styles an Encyclopædia. (the Arabic title is *Kitab al Majmû, i. e.* literally 'The book of the sum total.') He subsequently compiled a commentary to it, which extended to about twenty volumes. When he was twenty two years old, Avicenna lost his father, whom he succeeded for a short time in the office of minister to the sultan of Bokhara; but after the downfall of the Samanide dynasty, which happened about the beginning of the eleventh century, he quitted Bokhara, and removed first to Karkanj in Khowarezm, afterwards to Nisa, Abiwerd, Tûs, and other places. He was for a time attached as physician to the court of the Dilemite sovereign, Shams ul Maâli Kabûs ben Washingîr. When this prince was dethroned, which happened about A.D. 1012, Avicenna retired to Jorjan, where he began to write his celebrated treatise on medicine known under the title of the Canon (*Kitab al Kânûn fi l Tibb, i. e.* 'Book of the Canon in Medicine.') He subsequently lived for a time at Rai, Kazwin, and Hamadan. In the last place he was appointed vizir to Shams eddaulah, the reigning sovereign of that town. In this capacity, however, Avicenna gave but little satisfaction, and lost his office when Shams eddaulah died. He now took up his abode at Ispahan, where he compiled several of his works, and began to take notes of the cases that came under his observation in his medical practice, intending to avail himself of them as materials for the completion of his Canon of Medicine; but we are informed that these notes were lost before he found time to make the intended use of them. He was physician to Alá-eddaulah, then the sovereign of Ispahan and accompanied him on a journey which that prince undertook to Hamadan. Avicenna, whose health had been previously weakened, had an attack of cholic on the road, of which he died shortly after his arrival at Hamadan, being then fifty-eight years old. Ebn Khallican fixes the time of his death in the month of Ramazan, A. Heg. 428 (A.D. 1036): the same year is assigned by Abulfaraj (p 23[illegible], ed. Pocock) and by Casiri (*Bibl. Escur.* vol. i p. 269) on the authority of a different Arabian writer. According to Hottinger (*Bibliothecarius Quadripartitus*, p. 261), Avicenna died, 'at the age of about eighty in A. Heg. 442 (A.D. 1050); and, according to a short biographical notice prefixed to Anton. Deusing's Latin translation of the *Canticum principis Abi Alis Ibn Sinæ de Medicina*, Groning. 1649, 12mo., 'at the age of eighty-eight years and seven months, in A. Heg. 468 (A.D. 1075): both these statements appear to be erroneous, but we are unable to trace the origin of the mistake. The writings of Avicenna, chiefly on philosophy, mathematics, and medicine, are very numerous. Casiri (vol. i. p. 299) notices a list of them, in which sixty are enumerated: Ebn Khallican states the total number of his great and short treatises at nearly a hundred, and mentions particularly the *Shefâ fi'l-hikmat*, the *Nejât*, the *Ishârât*,

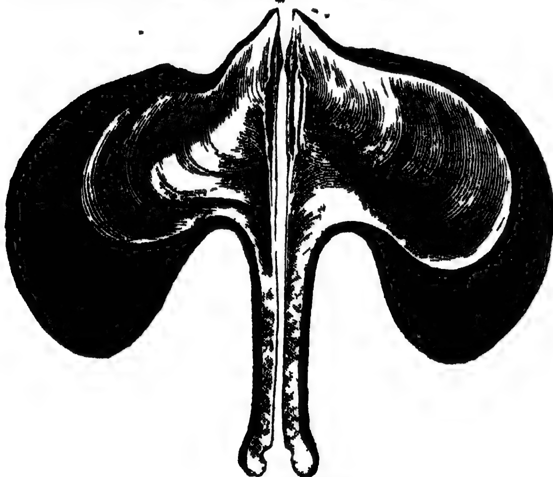
* These particulars are taken from the *Dictionnaire Universel de la France*, which was published thirty years ago; and the increased population indicates a revival of its prosperity. The number of inhabitants, as given in that work, was 3578; in 1826, it was as given above.

and the *Kânûn*: the titles of many others may be seen in Casiri (vol i. p 270). Among them, the Kânûn acquired the greatest celebrity, and became, even in Europe, for many centuries, the standard authority in medical science, less on account of original merit, in which, according to Sprengel, it is very deficient, than on account of its judicious arrangement, and the comprehensive view which it afforded of the doctrines of the antient Greek physicians, at an age when the knowledge of the Greek language was very scanty. It was translated into Latin by Geraldus Cremonensis, at Toledo This translation, revised and accompanied with a commentary, by Jacobus de Partibus, was edited for the first time in 1498, at Lyons, in four large volumes in folio, by two Germans, Johannes Trechsel and Johannes Klein, several other editions have since appeared, the latest at Venice, in 1585, fol An edition of the Arabic text of the Canon was published at Rome, 1593, fol

(See Ebn Khallican, art al Hossein ben Sina; Abulfaraj, *Historia Dynastiarum*, ed Pocock, p 229 233 Bar Hebræi, *Chronicon Dynastiarum*, t i p 231-233 Casiri, *Bibliotheca Arabico Hispana*, t i p 268, &c Hottinger, *Bibliotheca rius Quadripartitus*, Tiguri, 1664, 4to p 256 261, Sprengel, *Histoire de la Medecine*, trad par Jourdan, t ii p 305, &c We have not had an opportunity of consulting Fudella's translation of an account of Avicenna's life by Ebn Joljol Jorjani, Venice, 1595, which is cited by Sprengel)

AVI'CULA (zoology) a genus of marine conchifers, or bivalves with unequal valves, in which Sowerby, with much show of reason, includes the genus *Meleagrina*, also formed by Lamarck The shell in both is foliaceous externally and internally, of a brilliant pearly lustre The left hand valve is contracted and notched posteriorly, and so is the right, but very slightly Through this sinus passes the byssus, by which they are moored to rocks and other marine bodies The ligamental area is marginal and broadest in the centre and there is generally a small tooth in each valve near the umbones This is most conspicuous, generally speaking, in *Avicula* (Lam), but is not always found, while it is often present in Lamarck's *Meleagrina*, though it is sometimes absent The muscular impression is nearly central, somewhat orbicular and large

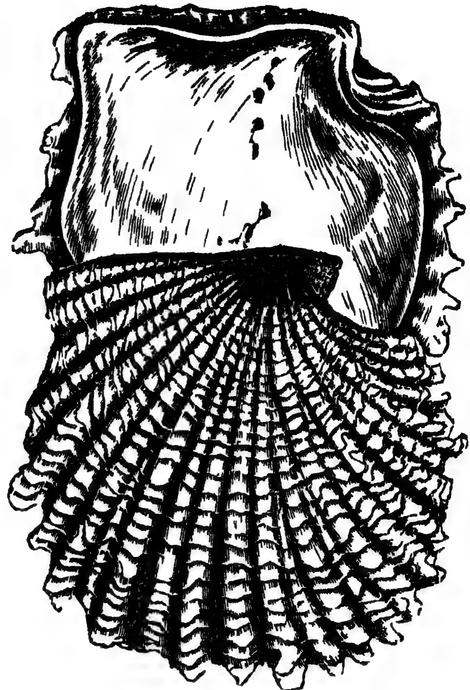
Avicula, then, as characterized by Sowerby, will comprise two sections the first including those species which have their base, or hinge-line, considerably prolonged, the second embracing those which are without that prolongation—in other words, the *Meleagrina* Both sections are the inhabitants of warm climates *Avicula macroptera* may be taken as an example of the first section.



[Avicula macroptera.]

Avicula margaritifera (*Meleagrina margaritifera*, Lam, *Mytilus margaritiferus*, Linn), commonly known as the pearl-oyster, the source whence the most precious pearls are derived, will afford an illustration of the second section.

The shell itself is imported in great quantities, for the manufacture of the *nacre*, or *mother-of-pearl*, into buttons, knife-handles, paper-knives, &c, but its great commercial value rests on the pearls which it contains For these beautiful productions, which may be considered as extravasated nacre, there are fisheries in both hemispheres. The pearl of great price, however, is found in the East, where the principal fisheries, at Ceylon, Cape Comorin, and in the



[Avicula margaritifera *]

Persian Gulf, are carried on by means of divers. Captain Percival has given so lively an account of the pearl fishery at Ceylon, that the whole busy scene is brought before the reader [See PEARL]

AVIENUS, or AVIANUS, sometimes written ANIANUS As it is not within the plan of this work to allot much space to the discussion of minute and obscure points of literary history, we shall not inquire which is the true way of writing the above name, or whether the different forms belong to one or two persons Under one or other of them we have a collection of Æsopian fables in Latin elegiac verse, translations of the Phænomena and Prognostica of Aratus into hexameters, a translation of the Periegesis of Dionysius, entitled 'Descriptio Orbis Terræ', and a poem in iambic verse, entitled 'Ora Maritima,' of which only the first book remains, containing a description of the Mediterranean, from the Straits of Gibraltar to Marseilles. The fables commonly bear the name of Flavius Avianus, the other works that of Rufus Festus Avienus The reader will find the identity of these two persons largely discussed in the dissertation annexed to the edition of Avianus's Fables, by Henry Cannegeter, Lugd Bat 1731 but it requires some patience to wade through the mass of heterogeneous matter there collected The translations from Aratus will be found in many of the editions of that author, and especially in that of Buhle, Lips 1801 The 'Descriptio' was edited by Friesemann, Amst 1786, and, together with the Ora Maritima, is contained in the Oxford edition of the Minor Greek Geographers The author of these works appears to have lived about the year 400 Avianus the fabulist is placed, by those who deny his identity with Avienus, about 210 years earlier

AVIENUS, GENNA'DIUS, was a leading senator of his day (see his character in the Letters of Sidonius Apollinaris, i. 9) and colleague of Valentinian in his 7th consulate, A D 450. Two years after he was sent on the embassy which induced Attila to pause in his march against Rome. (See ATTILA, Sirmond, *Notes to Sidonius*, Par. 1652, Gibbon, ch xxxv)

AVIGNON, a celebrated city of France, in the department of Vaucluse, of which it is the capital. It is situated on the left bank of the Rhône, just above where the river Durance flows into it, and is 432 miles S S E. of Paris, 43° 56′ N lat, 4° 46′ E. long.

Avignon (the Latin name was *Avenio*) is a very antient city, and some writers have ascribed its origin to the people of the Greek colony of Massilia, now Marseilles.

* The figure represents a young individual. The shell grows to a large size, and then the delicate foliations disappear

According to another opinion, it was the capital of a Gallic tribe, the Cavares, in whose territory it was doubtless situated, and from whom it was called *Avenio Cavarum*. It came into the hands of the Romans at an early period of their dominion in Gaul, and a Roman colony appears to have been established here. Upon the downfall of the Roman empire in the west of Europe it was possessed by the Burgundians, and afforded to the king of that people a secure asylum from the power of Clovis, king of the Franks, who besieged it in vain. It subsequently became subject, perhaps for a short time, to the Visigoths, certainly to the Ostrogoths, Franks, and Saracens. The Saracens took it twice, but could not retain it. Afterwards it came into the hands of the kings of Arles and Burgundy. It was an object of contention between the Counts of Provence and Toulouse, who at last agreed to hold the city conjointly, and to divide its dependencies between them. Part of the dependencies was also held by the Counts of Forcalquier; but the last of that family bequeathed his portion to the citizens of Avignon, who were enabled by this accession to their resources, and by the dissensions of the Counts of Provence and Toulouse, to acquire a kind of independence. But when the domains of the two last-mentioned nobles came by marriage into the hands of Charles and Alphonso, brothers of Louis IX. (or St. Louis) of France, Avignon was obliged to submit. It was at first divided between the two princes, but afterwards was wholly included in the county of Provence. The period of independence terminated in 1251, after subsisting less than half a century.

Yet this short period sufficed to subject the town to the horrors of war. The crusade against Raymond of Toulouse, chief of the Albigenses, was directed also against Avignon, which supported him. Louis VIII., King of France, besieged and took the city in 1226, beat down the walls and all the houses in the environs, put some of the most patriotic citizens to death on pretext of sedition, and would have quite extinguished the liberty of Avignon if death had not removed him.

More than half a century after this, Pope Clement V., himself a native of France, removed his court and residence from Rome to Avignon, which continued to be the papal residence, until Gregory XI., in 1376, left it to return to Rome. In the grand schism which took place on the election of Urban VI., successor of Gregory, Avignon became the residence of the anti-popes Clement VII. and Benedict XIII. The latter was driven out in 1408 by the French who were tired of the schism. Pope Clement VI. in the year 1348, during the period of the papal residence at Avignon, purchased the city of Jane Countess of Provence and Queen of Sicily; and the sovereignty was retained by his successors until it was seized by the French, in 1791, since which period Avignon has been a part of France. The popes governed the city and its dependent county, by a cardinal-legate, or rather, as the legate was always non-resident, by a vice-legate, who had jurisdiction not only over the county of Avignon, but also over the county Venaissin, which, though frequently confounded with it, was really distinct, and derived its name from the antient town of Venasque, which was once the seat of a bishopric and the capital of the county. (Piganiol de la Force, *Nouvelle Description de la France*, 1722.) The inhabitants of Avignon, however, while they continued subject to the pope, were naturalized in France, and were eligible to offices or ecclesiastical appointments in that country. A garrison of about 180 men (viz. 50 light horse, who served as the guard of the vice-legate, 100 infantry, and 20 to 24 Swiss guards, and officers with good pay) was maintained by his Holiness.

There were in the city several courts of justice. That of the *Viguier* was the most antient. It took cognizance of cases, whether civil or criminal, in which the laity were concerned. There were two judges: but an appeal lay from their decision to the *Viguier* himself, who heard the cause again, in conjunction with three assessors. The *Court of Vicegerence* was for all cases in which the military and religious orders were concerned; and that of the *Rote* (*della Rotta*) for all cases in which the clergy were engaged. This court consisted of the *Auditor-General*, as president, and four or five other judges. Another court, that of the *Auditor-General*, had a primary jurisdiction in particular cases; and was also a court of appeal from the sentence of individual judges or magistrates of Avignon and the county Venaissin. From this court again an appeal might be made nominally to the *Vice-Legate*, but in reality to the tribunal of the *Rote*, to which the *Vice-Legate* transferred the affair; in such cases the *Auditor-General* took no part in the decision. In criminal cases an appeal lay in the last resort to a tribunal composed of the *Auditor-General* and some other judges, with the *Vice-Legate* himself for president. It seems likely that in this case the appeal was in form made to the *Vice-Legate*, and that he committed the case to the tribunal just mentioned. He usually gave audience twice a week to receive appeals. According to some authorities, there was a further right of appeal from these several courts to Rome. The Inquisition was also established at Avignon.

The *viguier*, who has been already mentioned, though nominated annually by the Pope, appears to have been the successor of the *podestat*, the chief magistrate of Avignon at the period of its independence. He was always a gentleman by station. The police was under the direction of three officers, called *consuls*, who, with their assessor, were the police magistrates.

Since the cession of Avignon to France, these various courts have of course given way to the ordinary tribunals of that kingdom.

The city at the most antient period was built on what was called Le Rocher des Dons (on or near which the cathedral stands), and gradually extended towards the plain, forming nearly a square. It was surrounded by a strong wall, by whom built is uncertain; but a change in the course of the Rhône having left part of the city open, a new wall was erected, probably by the Romans. These latter walls were built on very substantial arches. Some remains of them were existing when Expilly wrote his account (viz. 1762), and the antient gates had been then removed only about twenty years. Several remains of antiquity have been dug up at different times.

Avignon is pleasantly situated in a valley, which is adorned with meadows, orchards, and mulberry plantations. The city is in great part surrounded on the land side by a *cours*, or promenade, planted with elms, which runs outside the circuit of the walls. The Rhône flows on the west side of it, and is crossed by a wooden bridge, remarkable for its length. A stone bridge was erected in the latter part of the twelfth century. The work was undertaken and commenced by St. Benezet, a shepherd boy of eighteen, but he did not live to see the completion of the work. It had nineteen arches; and was regarded as a wonderful structure, on account of the breadth, depth, and rapidity of the river. In the year 1669, in the reign of Louis XIV., it was almost entirely carried away by the violence of the stream, and only four arches were left entire: the part destroyed was replaced by a wooden structure, which appears to be the one now standing.

While under the papal dominion, Avignon abounded in churches and religious establishments. The continual noise of their bells led Rabelais to give to the city the name of *La Ville Sonnante*. The cathedral is by no means of uniform architecture. Its portal is supposed to have been removed from an antient temple of Hercules. Its magnificence at a former period was considerable: but as later authorities do not say much of it, we cannot tell whether it has gone to decay during the last eventful half century. Among the tombs which it contains are those of the Popes Benedict XII. and John XXII. There were, during the later period of the papal dominion, collegiate churches served by many ecclesiastics; and a great number of religious houses for persons of both sexes, namely, twenty for men, and fifteen for women; besides hospitals and charitable institutions. The number of ecclesiastics was estimated by Expilly, in 1762, at 900. The church of the Cordeliers was celebrated for the tomb of Laura de Sade. The same tomb contained also the body of her husband Hugues de Sade. Her best monument is the poetry of her lover Petrarch. The church is now in ruins, and the tomb has disappeared, but it is said to be still entire under the ground. The site of the church and its enclosure is converted into a fruit-garden, and a small cypress tree marks the spot where Laura is interred. (*Travels in France in* 1814-15.) The same church contained the tomb of 'the brave Crillon,' one of the most distinguished warriors of France in the unhappy religious troubles of the sixteenth century. In the church of the Celestins there was a valuable library, a painting of a human skeleton of the natural size, said to have been done by René of Anjou, the tomb of Cle-

ment VII., and that of St. Benezet, the architect of the bridge over the Rhône. The church of the monks of St. Anthony contained the tomb of Alain Chartier, a French writer of eminence in the fourteenth and fifteenth centuries. An ivory crucifix, 26 inches long, of most exquisite workmanship, a production of the sixteenth century, is in the church 'de la Miséricorde.' This is considered one of the greatest curiosities in the city.

Avignon is still remarkable for the number of its charitable and useful institutions. It has an infirmary for soldiers whose wounds require a milder climate than that of Paris; a lunatic asylum; a high-school (*collège royal*); a seminary for the education of priests; a society of the friends of the arts; an agricultural society; a collection of paintings and antiquities; a museum of natural history; a botanical garden; and a public library of 27,000 volumes. There is also a learned society called the Academy of Vaucluse. The present theatre was erected in 1825.

The town is clean: the houses are of stone and well-built; but the streets, in part at least, are narrow and crooked. The town is subject to violent winds. Avignon contains many relics of its former greatness. The papal palace, which is adjacent to the cathedral, is an enormous mass of Gothic architecture, and has been for some time and is still used as a barrack. The former mint is now applied to a similar purpose; it has a fine front.

The trade of Avignon has been making considerable progress for some years past. Silk stuffs are the chief articles manufactured; and there is a cannon foundry: also a foundry for sheets of iron, copper, and tin; and a saltpetre refinery. The chief productions of the neighbouring country appear to be madder roots and silk. The number of mulberry trees has increased *very greatly* of late years. A great part of the trade of Avignon is carried on through the port of Marseilles, to and from which goods are conveyed on the Rhône by way of Arles. The population of Avignon in 1832, was about 30,000 for the commune, or 26,000 for the town itself. In 1762, Expilly computed them at 28,000. Among these were about 600 Jews, who lived by themselves in a quarter called the Juiverie, or Jewry.

The bishopric of Avignon is of early date, though we need not adopt the tradition which makes St. Rufus, the son of Simon the Cyrenian (who carried our Saviour's cross), the first possessor of the see; and which ascribes the plantation of Christianity here to Martha, the sister of Lazarus, and Mary Magdalene. The bishop was successively a suffragan of the Archbishops of Vienne and of Arles; but in 1471 or 1475, Pope Sixtus IV., at the instigation of his nephew, Cardinal Julian de la Rouère, who was then bishop, raised the see to an archbishopric. The suffragans of this new metropolitan were the Bishops of Carpentras, Cavaillon, and Vaison, who were also taken from under the jurisdiction of the Archbishop of Arles. The archbishop still retains his rank; and has under him the Bishops of Nismes, Valence, Viviers, and Montpellier. The department of Vaucluse forms his diocese.

Several councils were in the middle ages held at Avignon; but they do not appear to have been general councils. A council of the archbishop and his suffragans was held in 1727. In 1303, Pope Boniface VIII. erected a university, but it is not now in existence. It enjoyed considerable reputation in its day.

It may be observed that while the city and territory were subject to the Pope, the river Rhône was always under the dominion of the King of France.

Avignon is remarkable for the vivacity of its inhabitants and the beauty of the women. Several illustrious persons, male and female, were natives of this place; among them Laura, the mistress of Petrarch; the Chevalier Folard, a writer on military affairs; Claude Joseph Vernet, the painter; and the Abbé Poulle, a celebrated pulpit orator.

The arrondissement of Avignon comprehends 174 square miles, or 111,360 acres, and contains a population of 66,000 inhabitants. (*Le Grand Dictionnaire*, by Martinière; *Dictionnaire des Gaules et de la France*, by the Abbé Expilly, 1762; MM. Malte Brun, Balbi.)

A'VILA, a district in Old Castile, comprising the territory situated between 40° 8′ and 41° 10′ N. lat., and 4° 15′ and 5° 30′ W. long. It is bounded, on the east, by the province of Segovia; on the west, by that of Salamanca; on the south, by that of Toledo; and on the north, by Valladolid. The territory of this province is the most elevated in the central part of Spain, particularly in its southern extremity, where it is very mountainous. The principal of these mountains are the Sierras de Avila, the direction of which is, in general, from east to west. There also is the great *paramena* of Avila, a truncated cone, the summit of which contains a surface of 8 square leagues, about 72 English square miles. This vast extent of ground is almost barren, and serves only for pasture and fire-wood. The southern part of this province being so mountainous is extremely cold, and very thinly peopled. The northern districts are milder, more productive, and better inhabited; but they are deficient in fuel, which is supplied from the forests in the south.

There is a lake, of small extent, near Don Jimeno; and two still smaller lakes, called Los Salinas, not far from Hernan-Sancho.

The rivers of this province are very inconsiderable. The Adaja, which is the principal, has its source near Villatoro, 20 miles west of Avila. Its course is from west to east as far as that city, where it forms an angle, and taking a direction from south to north, after being enriched by the Bolloya, empties itself into the Duero, in the province of Valladolid. Its course is about 36 miles. The Alberche springs near Piedrahita, on the western boundaries of the province, flows first south, then east, and lastly south-west, and falls into the Tagus, near Cazalegas, in the province of Toledo. Its course through the province of Avila is about 60 miles. The other rivers, or rather streams, are not deserving of mention: with the exception of the last-mentioned, all flow into the Duero, following the inclination of the land, which in general is to the north.

The area of this province is, according to Miñano, 175 square leagues of 20 to a degree, which makes 1575 geographical square miles; and its population 106,716 inhabitants, distributed among 283 towns and villages.

More than half the lands of the province are uncultivated. The part which is cultivated, and which does not consist of pasture-ground, produces grain, fruit, oil, wine, and flax. The unfavourable state of agriculture in this province is chiefly owing to the circumstance, that the greater part of the lands is either vested inalienably in ecclesiastical bodies or is fettered in the hands of private families by strict entails. (See Miñano, and also the *Estadística Territorial de la Provincia de Avila*, by Don B. Borjas y Tarrius.)

A'VILA, the capital of the province of that name, is situated in a plain elevated 3484 feet above the level of the sea, on the right bank of the Adaja, 40° 42′ N. lat. 4° 50′ W. long. It is surrounded by old walls, which were built in the time of Alonso VI. of Castile. The streets are very irregular, but well paved and clean. The houses are in general built of granite of a dark colour, which circumstance gives to the city a gloomy aspect. The town is ornamented with many fountains, and has a good promenade in the suburbs. At a certain distance the city presents an appearance of grandeur, owing to the great number of towers and steeples which rise majestically over its old walls.

Avila is an episcopal see, and has a chapter, a bishop, seven dignitaries, twenty canons, and a great number of chaplains. The bishopric contains 535 parishes. The city has eight parishes, eight convents for men and eight for women, an hospital, a seminary, and a university in the convent of Santo Domingo. The population is 4976.

Avila has the privilege called Pote de granos, or the standard measure for grains, known in Spain by the name of Marco de Avila.

This town has been the theatre of many remarkable events; among others, of the solemn act of deposition of the weak Enrique IV., who, on the 5th of June, 1465, was solemnly degraded in the public square from the royal dignity, and his brother Alonso proclaimed king in his stead.

There are at Avila nine manufactories of woollen stuffs, five of cotton prints, and several of hats, belonging to private individuals; besides the royal manufactory of cloth, the machinery of which is moved by water.

Avila is the birth-place of Santa Theresa, the founder of the bare-footed Carmelites, whose writings are so highly valued in Spain for the purity and elegance of their style.

(See Miñano; Antillon; *Estadística de la Provincia de Avila*, por Don Bernardo Borjas y Tarrius.)

AVISON, CHARLES, a musician of considerable eminence, both as a critic and a composer, was born about the year 1726. When young he visited Italy for the purpose of study, and after his return became a pupil of Geminiani

under whom he acquired his knowledge of score-writing. He settled at Newcastle upon Tyne, having accepted the place of organist of the principal church in that town, where he continued till his death. In 1752 he published his *Essay on Musical Expression*, a well written work, which displays much acuteness, and no small share of that taste which arises out of good sense and deep reflection; but he was not free from prejudices, and laboured in vain to exalt Marcello and Geminiani at the expense of Handel. Many, however, of his opinions will bear the test of strict examination; and much of what he has advanced, especially in favour of simplicity in choral music, will be admitted to be just, when a little philosophy is called to the aid of musical criticism. His essay was answered by Dr. William Hayes, of Oxford, who certainly exposed two or three errors which Avison had fallen into respecting the established rules of musical composition. But the learned professor made his attack with too much asperity, and was, in a few instances, over strenuous in defending certain laws of harmony which even then were beginning to be slighted, and have since been abrogated in practice. Avison, in the following year, replied to Hayes in a short pamphlet containing much sarcasm and little argument; and here the matter dropped: but his work continues to be read, while that of his assailant is forgotten. Mr. Avison was the projector of the adaptation of Marcello's Psalms to the English version, which Garth of Durham undertook and published, much assisted by the former. His own compositions consist chiefly of five sets of Concertos for a Full Band, forty-five in number, which exhibit more elegance than originality; they were nevertheless very favourably received, and one or two of them are still performed at the Antient Concerts, where the distinctness of their melody always secures to them several willing hearers and some warm admirers.

AVLONA, called by the Italians Valona or La Valona, a town in Albania on the gulf of Avlona, which is formed by the headland known to the Greeks and Romans as the Acroceraunian Promontory, and called at the present day Cape Linguetta or Glossa (i.e. Cape Tongue). This headland is the termination of the Acroceraunian Mountains of the antients, now the Mountains of Khimara. The gulf of Avlona is a deep recess in proportion to its extent: the town is not at the bottom of it, but on the left hand as you sail into the gulf. The town has a considerable lake near it, and to the N.E. it is sheltered by one of the ranges of the Albanian mountains.

The long connexion of Avlona with Italy has given to it the appearance of an Italian town. Dr. Holland, on his visit, observed the Italian style of building in the street along which he passed. The population is now, however, almost entirely Mohammedan. Although there is a Greek bishop of Avlona, yet the number of Greeks is few, perhaps about thirty families. There are a few Christians of the Latin church, whose superior is the Bishop of Monte Negro. At the time of Dr. Holland's visit (viz. in 1813) and when Mr. Hobhouse was in Albania (in 1809) it supplied Upper Albania with such articles of Italian and German manufacture as were in use among the natives, guns and pistol barrels, glass, paper, and Calabrian capotes. The exports were timber, gall nuts, wheat, maize, wool, oil, and mineral pitch from the mines of Selenitza on the left bank of the Viosa, or Boussa, about 8 miles to the N.E. of Avlona. Dr. Holland estimated the number of houses at nearly 1000, and Mr. Galt had previously estimated the inhabitants at 5000. There were six mosques and one Greek church.

Avlóna was known to the antients by the name of Aulon. It is in lat. 40° 29′ N., and long. 19° 26′ E. from Greenwich.

Avlona was in the pachalic of Berat [see Berat], and Ibrahim Pacha of Berat, who was deposed and imprisoned by Ali Pacha, retired here after the surrender of his capital, with his suite and treasures, and held out for some time against a blockading force, until, after he had escaped to the mountains, he fell into the hands of his enemies by treachery.

Dr. Holland describes the bed of asphaltum or compact mineral pitch at Selenitza as probably extending over a surface at least four miles in circumference. The pitch appears in various places on the declivity of the ravines which intersect the district, and is occasionally worked in such situations, but more frequently by shafts sunk down from the surface. It is covered by a loose deposit of calcareous earth and clay, by beds of shale, &c., the thickness of which varies in different places. Dr. Holland descended into one shaft which was only 40 feet deep, 30 feet being cut through the bed of pitch. At this depth, and while having yet a floor of the mineral, the workmen began to tunnel in a horizontal direction; but this mine was of recent origin, and the workings had yet advanced only a few feet from the shaft. The miners reported that in some parts the bed of pitch (or beds, for it is not ascertained whether it is one continuous bed or not) was 70 or 80 feet thick. The colour of this pitch approaches to black; the fracture is conchoidal; it is slightly brittle, and has a specific gravity of 1.4 or 1.5. It becomes viscid, or nearly fluid, when heated, and burns with a tolerably bright flame. The property of the mines is vested in the Grand Seignior, and Ali Pacha paid a rent of 10,000 piastres per annum. The carriage of the pitch to Avlona was chiefly done by horses, and six or seven cargoes were (about 1812) annually exported, chiefly to Malta and to different Italian ports. Taking the piastre of Selim of 1801 as the standard here, 10,000 piastres are equal to nearly 600*l.*

AVOCADO PEAR. [See Persea.]

AVOCAT, a French word, derived from the Latin *advocatus*, and corresponding to the English 'counsellor at law.' [See Advocate.] In French law language the avocats are distinguished into 'avocats plaidans,' who answer to our barristers, and 'avocats consultans,' called also 'jurisconsultes,' a kind of chamber counsel who do not plead in court, but give their opinion on intricate points of law. Under the old monarchy the avocats were classed, with regard to professional rank, into various categories, such as 'avocats au conseil,' who conducted and pleaded causes brought before the king's council; they were seventy in number, and were appointed by the chancellor; they were considered as attached to the king's court: and 'avocats généraux,' who pleaded before the parliaments and other superior courts, in all causes in which the king, the church, communities, and minors were interested. At first the 'avocats généraux' were styled 'avocats du roi,' and the other barristers who pleaded in private causes were called 'avocats généraux;' but towards the end of the seventeenth, or the beginning of the eighteenth century, these appellations were changed, the 'avocats du roi' were styled 'avocats généraux,' and three of them were appointed to each superior court, while the counsel who filled the same office before the inferior courts assumed the name of 'avocats du roi.' (*Répertoire Universel de Jurisprudence*, and *Dictionnaire de l'Académie*.) 'Avocat fiscal' was a law officer in a ducal or other seignorial court of justice, answering to the avocat du roi in a royal court.

At present there are in France 'avocats au conseil du roi,' as formerly 'avocats généraux,' of whom there are five at the Cour de Cassation or Supreme Court, four at the Cour Royale of Paris besides substitutes, and two or three at each Cour Royale in the departments. The practising barristers are classed into 'avocats à la Cour de Cassation,' who are fifty in number, and who conduct exclusively all causes before that court, and 'avocats à la Cour Royale,' who plead before the various royal courts. All avocats must be bachelors at law, and must have taken the oath before the Cour Royale. There is a roll of the advocates practising in each court. Candidates are admitted by the Council of Discipline after a probationary term. The members of the council are elected by the advocates inscribed on the roll. The 'avoués' (attorneys) also plead when the number of advocates is not sufficient for the despatch of business. (*Almanach Royal et National.*) The word 'avoué,' in canon law, meant the protector or guardian of some church, abbey, or monastery, or other ecclesiastical community and jurisdiction. In the middle ages he was generally some feudal lord who took care of the temporal interests of the community, and defended them either in court or field; he dispensed justice in the name of the ecclesiastical superiors in all places under their jurisdiction, and commanded the forces assembled in their defence. In German he was called Kastvogt; the name occurs often in the history of the middle ages.

AVOIRDUPOIS, or AVERDUPOIS, the name given to the common system of weights in England, now applied to all goods except the precious metals and medicines. Thus, a pound of tea is a pound *averdupois*, and contains 7000 grains, a pound of gold is a pound *troy*, and contains 5760 grains. The word has been supposed to be derived from the French *avoir du poids*, to have weight; but considering that *averdupois* is the more antient mode of spelling the word, and

that the obsolete French verb *averer*, and the middle Latin word *averare*, signify to *verify* (see Ducange, at the word *Averare*), it is more likely that we are to look here for the true etymology. It has also been supposed that the word is derived from *averia ponderis*, *averia*, and *avera* being (on the same authority) words used for goods in general.

The ounce averdupois is generally considered as the Roman *uncia*. It contains 437½ grains (N.B. there is but one grain in use amongst us), while the Roman *uncia*, according to Arbuthnot, contains 437¼ grains; according to Christiani (*Delle Misure*, &c., Venice, 1760, cited by Dr. Young) it is 415¾ grains; and according to Paucton (cited by Dr. Kelly) it is 431¼ grains. Whether the preceding be correct or not, we cannot suppose that in any case the supposition could be nearly verified, as our ancestors do not appear to have been very attentive to small weights: for instance, in the list of church gold and silver plate delivered to Henry VIII. (preserved in the Bodleian library), nothing less than an ounce is mentioned, except only once, in which a quarter of an ounce is given.

The antient pound (now used in Scotland) was heavier than the averdupois, and weighed 7600 grains: the earliest regulations on the subject fix the *troy* weight: the averdupois is mentioned in some orders of Henry VIII. A.D. 1532, and a pound of this sort was placed in the Exchequer as a standard by Elizabeth, A.D. 1588. The committee of 1758 found this pound to be 1¼ grains less than it should be, as deduced from the standard troy pound kept at the Mint, which they attributed to frequent use; but considering the averdupois weight altogether as 'of doubtful authority,' and troy weight as the one 'best known to our law,' they recommended the adoption of the latter as a standard, which it has accordingly been ever since, though goods in general are weighed by averdupois weight.

The committee of 1816 made no alteration in the weights, but ascertained the value of the grain, as afterwards described in the Act of Parliament 5 Geo. IV. c. 74: 'A cubic inch of distilled water, weighed in air by brass weights, at the temperature of sixty-two degrees of Fahrenheit's thermometer, the barometer being at thirty inches, is equal to two hundred and fifty-two grains and four hundred and fifty-eight thousandth parts of a grain.' The pound averdupois contains 7000 such grains. From this it may be deduced that a cubic foot of water, under the above conditions, weighs 997·14 ounces, which, being very nearly 1000 ounces, gives an expeditious rule for deducing the real weight of a cubic foot of any substance from its specific gravity. For example, if the specific gravity of gold be 19·36, the weight of a cubic foot of gold is 19·60 ounces averdupois. If more accuracy be required, subtract three for every thousand from the result.

The averdupois pound is divided as follows:—

Grains	Dram		
27$\frac{11}{32}$	1	Ounce	
437½	16	1	Pound
7000	256	16	1

28 pounds make one quarter.
112 pounds or 4 quarters, one hundred weight.
20 hundred weight one ton.

The ounce is more commonly divided into quarters than into drams.

The usual contractions are as follows:—

grain . .	gr.	pound . .	lb.
dram . .	dr.	quarter .	qr.
ounce	oz.	hundred weight	cwt.

To reduce a large number of pounds to hundred weights roughly, *from all but two figures take all but three*. Thus 17,684 pounds contain 159 hundred weight, done as follows:—

176
17
———
Subtract 159

When the number of hundred-weights exceeds 100, the error can never be greater than two.

The pound averdupois is ·45354 of the French kilogramme, and ·9071 of the common French pound. That is, 904 pounds are 410 kilogrammes, and 452 pounds averdupois are 410 French pounds. [See WEIGHTS and MEASURES.]

If decimals be employed, from one *hundredth* of the pounds subtract one *thousandth*, and from the result subtract its *hundredth* part. The result is about one five-hundredth part too small. We give the preceding example, and another which is an obvious verification.

17,684 lb.	112 lb.
176·84	1·12
17·68	·112
159·16	1·008
1·59	·010
157·57	·998

AVON, the name of several British rivers, the principal of which we shall mention below. It is said to be derived from the antient British language, and to signify a river *.

1. *The Upper Avon*, or the Avon of Warwickshire, is a tributary of the Severn. It rises from a source called Avon well, in the village of Naseby, in Northamptonshire, and after flowing a little way towards the N.W., turns to the S.W., and forms the boundary between the counties of Northampton and Leicester. About twelve or fifteen miles from its source it is crossed by the Roman *Watling street* at Dow bridge, near the remains of a Roman station, supposed by Mr. Ireland to be the Tripontium of Antoninus. This station is in excellent preservation, and is close to the bank of the river. It is not on the Watling street, but about half a mile from it on the north-east side, and therefore a little higher up the river. From Dow bridge the river has a winding course of above thirty miles, its main direction being first to the west, and then to the south-west, past Rugby, Bretford, Stoneleigh, and other places to Warwick. In this part of its course it receives three tributaries, which may be noticed: the Swift (from Lutterworth in Leicestershire) and the Sow (from the north-east part of Warwickshire) fall into it on the right bank, and the Leam or Learne (which comes from the borders of Northamptonshire past Leamington Priors) on the left bank. From Warwick, where it flows under the walls of the castle, it winds gently towards Stratford, the birth-place of Shakspeare, about eight miles south-west from Warwick by the road, but the length of the river is probably from twelve to fifteen. A little below Stratford the river Stour (which rises just within the border of Oxfordshire, and carries off the waters of the southern part of Warwickshire) falls into the Avon on the left bank; a few miles below, the Alne (which comes from the north, and receives the waters of the Arrow, at Alcester) enters it on the right bank, and the stream leaving Warwickshire, enters Worcestershire, and passes on to Evesham, having had a course from Stratford of about eighteen miles. From Evesham the river takes a circuit by Pershore to Tewkesbury, just within the border of Gloucestershire, where it falls into the Severn. This last part of its course may be twenty-five or twenty-six miles, and the whole length of the stream from its rise to its junction with the Severn, may be estimated at about a hundred miles.

The stream of the Avon is gentle, and its banks interesting and beautiful, though occasionally flat. It is navigable from Stratford for vessels of about forty tons burden. Mr. Ireland states, on the authority of a person who occupied the mill near Rugby for almost forty years, that in some frosts (not in all) the river freezes from the bottom. 'The freezing commences at the bottom of the flood gates, which he (the miller) first becomes sensible of by the passage of the water being stopped at that point, and is plainly perceived at the flood gates, in its progress from the bottom to the top, to fill up and successively close the cracks that appear in the surface. They attempt to draw the sluices, but in vain, and with no better success attempt, with long poles, to break the ice. These poles, when drawn out of the river, are incrusted with light, hollow, and honey-combed ice. After these frosts the river always overflows its banks. Other masses of ice, in various parts, rise to the surface and are brought down by the stream. The upper part of the water is not frozen; and by the time the sun has been four hours above the horizon the whole is dissolved, and the mill no longer impeded in its operation.' This kind of frost the miller denominated the *anchor frost*. A similar phenomenon has been observed in the Thames, and also in America, where the same designation of *anchor frost* is used. (Ireland's *Picturesque Views on the Avon*.) A canal from Stratford to the *Worcester and Birmingham Canal*, connects the Avon with the great system of inland navigation in the midland counties.

2. *The Lower Avon* rises in the hilly district in the north-

* Mr. Ireland, in his *Picturesque Views on the Avon*, says, 'Avon, Even, or Sevon, is a name common to rivers whose course is easy and gentle.'

ern part of Wiltshire. Several springs, after uniting their waters, flow first to the N.W. past Wootton Basset (but not close to the town), then turn to the W., and afterwards to the S.W., past Chippenham and Melksham to Bradford, nearly forty miles from the source, following the windings of the stream. Between Wootton Basset and Chippenham the Avon receives a stream from the neighbourhood of Malmesbury, which is marked in some maps as the Avon, as though it were the main stream; and another small stream from the neighbourhood of Calne falls into it just above Chippenham. From Bradford the river has a circuitous course of more than ten miles to Bath, receiving the little stream of the Were from Trowbridge, and the Frome from Frome, both on the left bank. Between Bradford and Bath the river enters Somersetshire. From Bath, where it becomes navigable, it flows about twenty-seven or twenty-eight miles to the N.W. through Bristol into the Bristol Channel. Its whole course is thus between seventy and eighty miles. Large vessels can get up to Bristol, which is nine or ten miles up the river.

'This river is more remarkable,' says Skrine (*General Account of all the Rivers of Note in Great Britain*), 'for the romantic valleys it forms, and the rich country it winds through, than for its extent, being generally buried between deep banks. Its colour also is liable to be affected by storms—those from Wiltshire tinging it with white from a chalky soil, and those from Somersetshire with red from the ochre prevailing in that country; but it naturally presents a dark and deep stream, except where shallows intervene, and is occasionally rapid.'

The Kennet and Avon Canal, from Bath to Newbury in Berks, connects this river with the Thames; and other artificial navigations to open water communication between Bath and Bristol, and the clothing district of Wiltshire and Somersetshire. Just below Bristol the fine rocks of St. Vincent rise abruptly close to the river. It was in contemplation some few years since to throw a suspension bridge over the stream at this point, as there would be sufficient height for the largest vessels to pass beneath it. Below these rocks the river runs between marshes into the Bristol Channel.

3. *The Little Avon* is an insignificant stream, which rises in the southern part of Gloucestershire, and flows past Berkeley castle into the Severn.

4. *The Avon* of Wiltshire and Hampshire rises in the former county. It is formed by the junction of several rivulets (rising in the hills and downs which lie between Hungerford and Devizes), and flows in a southerly direction by Amesbury towards Salisbury, watering a low valley, considerably below the average level of the county, which intersects Salisbury Plain. At Salisbury it receives the Wily or Willey, or Willey-bourne (which comes from the neighbourhood of Warminster, and is augmented by the Nadder, or Adder-bourne*, from the border of Dorsetshire), and the Bourne which rises to the east of the springs of the Avon, and pursues a course nearly parallel to it. The Bourne, it may be observed, is dry in summer and harvest time. By these accessions the Avon becomes navigable, and entering Hampshire, runs along the western edge of the New Forest, past Fordingbridge, Ringwood, and Christchurch, until it falls into the English Channel, just below the last-mentioned town. Near its outfall it receives the Stour, which rising at Stourhead, Wilts, pursues its course in a south-east direction, past Sturminster-Newton-Castle, Blandford Forum, and Wimbourne-Minster, into Hampshire, and unites with the Avon. The length of these rivers may be estimated to be as follows:— The Avon, from its rise to Salisbury, is about thirty-seven miles long, and its whole length is above seventy miles. The Willey is about twenty-four miles long, and the Nadder about eighteen: the Bourne is nearly as long as the Willey. The Stour is more important, and nearly approaches the Avon itself in length: perhaps its course may be stated at about sixty to sixty-five miles.

Various handsome seats adorn the banks of the Avon on its descent to Salisbury, as well as in the lower part of its course through the New Forest. Below Ringwood, indeed, it passes through a less interesting sandy level to Christchurch. The Stour has a very winding course through a country adorned with a number of beautiful seats.

* This river is so named from its serpentine course. Næddra, Næddre, or Nædre is the old Saxon word of which our modern word adder is a corruption. It may be noticed here that the Deverill, another feeder of the Willey, is said to flow under ground in one part of its course: so Camden states; and Mr Britton has no doubt of its correctness. This brook has a longer course than the Willey previous to their junction.

Large ships can get up to Christchurch, where the tide rises seven or eight feet; but a few miles higher up, locks and sluices are required to make the river navigable.

5, 6. The name Avon is given to two rivers in the principality of Wales. One is in Glamorganshire. It rises in the inland part of the county, and after a south-west course of about fifteen miles, falls into the sea below the village of Aber Avon. The other river rises in Monmouthshire and falls into the Usk near Caerleon. It is of about the same length as the foregoing. This last-mentioned stream is distinguished as the Avon Lwyd, or the Torvden.

7, 8, 9. Three streams in Scotland bear this name. One is a feeder of the Spey, and rises in the south-western extremity of the county of Banff, close to Cairngorum Mountain. Its source is a small lonely loch, called Loch Avon, with steep precipitous banks, rising sheer up almost to the very ridges of the adjacent mountains, and entirely keeping the sun from the surface of the loch during the winter months. Its course is first easterly for about 13 miles, and then northerly for nearly 20 more, until it joins the Spey at Inveravon. Its whole course is about 32 or 33 miles. It flows from the lake in a large rapid stream, and the water is remarkably transparent, so as to appear fordable where it is not really so. In different books of geography it is said to have a course of only about 20 miles.

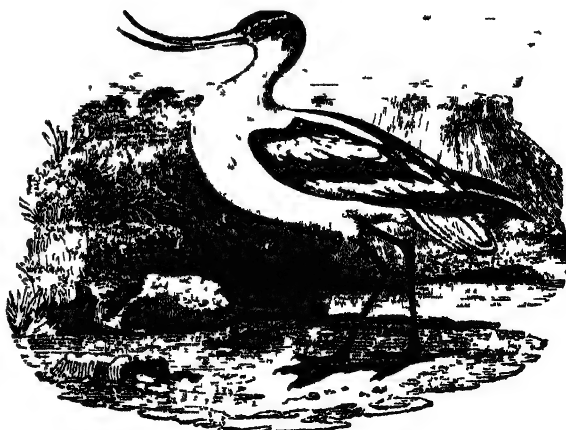
The next stream rises just within the border of Ayrshire, and flows in a circuitous course till it falls into the Clyde on the left bank near Hamilton. Its length is nearly 20 miles. The banks are high and bold, and in many places covered with natural wood.

The remaining stream runs from Loch Fannyside in Dumbartonshire; and flowing first to the east, and then towards the north, falls into the Frith of Forth, a little west of Burrowstoness. Its course is rather more than 20 miles, but it would be increased in length if measured from the head of one of its tributaries, the Logie water, which has a longer course than the parent stream previous to their junction. For about half its course, the Avon forms the boundary between the shires of Linlithgow and Stirling.

All these Scotch rivers are called sometimes *Aven*.

(Skrine's *English Rivers*: *Beauties of England and Wales*; Camden's *Britannia*; Ireland's *Picturesque Views on the Upper Avon, &c.*; Sir T. D. Lauder's *Account of the Great Floods of Moray*. The lengths are measured on Arrowsmith's *Map of England*, four sheets, 1815; and Ainslie's *Map of Scotland*, in nine sheets; except Nos. 2 and 4, and part of No. 1, which have been measured on the Ordnance Survey.)

AVOSET (Zoology). The vernacular name for some of the genus *recurvirostra* (Linn.), formerly included among the *palmipedes*, or true swimmers, but now, with greater attention to the habits and affinities of the birds, placed by Vigors among the *grallatores*, or waders, in the family *scolopacidæ*, between the genera *totanus* (sandpipers) and *limosa* (godwits), in which last the bill begins to be a little reflected.



[Recurvirostra Avocetta.]

The genus *recurvirostra* includes four species—at least authors have yet only recorded so many. The muddy shores of the ocean and the banks of æstuaries are their favourite haunts, where they feed on aquatic animals, such as the smaller conchifers, and mollusks, and the spawn of fishes. They are deep waders, but do not seem to be adepts at swimming. Only one of the species is European, and has been long remarked for the singularity of the shape of the bill. 'There needs no great pains be taken, or time spent, in exactly describing this bird,' says Ray in his edition of Willughby, 'for the singular bill reflected upwards is sufficient alone to characterize and distinguish it from all other birds we have hitherto seen or heard of.' This species, *recurvirostra avocetta* (Linn.), is widely diffused through the temperate climates of Europe. Siberia, the shores of the Caspian, and the salt lakes of Tartary, are also stated to be plentifully supplied with these birds, and it is said to be met with in Egypt and other parts of Africa. In England, they are to be found on the eastern coast below the Humber, and in Romney Marsh. In the north, and in Scotland, they are rarely seen.

Notwithstanding Ray's remark, this species cannot lay claim to such an exclusive singularity in the shape of the bill. To say nothing of the other species of *recurvirostra*, the reflected bill appears in the humming birds. As long as there was but one specimen known, there were not wanting those who looked upon *trochilus recurvirostris* (Swainson) with the eyes of doubt, and the curvature was considered to be accidental, or the effect of the position in which the bird had been packed for transportation. Six or seven individuals have, however, since been seen, and Lesson has even described a second species under the title of *trochilus avocetta*. That this, therefore, is a genuine form of the bill among the humming birds, there can be no question; but the structure of the organ in *recurvirostra avocetta* differs widely from that of the bill of these *trochili*.

Pennant well describes the *avoset's* bill as 'very thin, flexible, and of a substance like whalebone.' Buffon makes it the subject of one of his lamentations upon the errors of Nature and her niggard disposition in providing for some of the less favoured of the animal creation. But, in truth, no organ could have been devised more admirably adapted for the function which it has to perform than the bill of the *avoset*, as he who has seen the bird scooping, probing, or apparently patting and beating the water and soft mud with it, while the mandibles act as a strainer and retain the prey, will readily acknowledge. The *avoset* frequently wades up to the breast, and its long legs are well formed for this purpose; for they are compressed laterally, and present but a thin edge, so as to offer hardly any resistance to the medium through which they have to make their progress. Though the feet are palmated, they appear to be adapted not for swimming, but for supporting the bird upon the ooze, after the manner of the mud-boards used by fowlers, and figured by Colonel Hawker: this office the feet of the *avoset* execute in perfection. Montagu says, 'We remember one of this species being wounded in the wing, and floating with the tide for near a mile, when it was taken up alive without ever attempting to swim; so that the palmated feet seem only intended to support it on the mud.'

The nests of the *avosets*, which are very inartificial, are generally formed in the spring, in marine marshes, where the driest point is selected. They breed in the fens of Lincolnshire and Norfolk. The eggs are greenish, spotted with brown or black. When disturbed, soon after the young are hatched, they fly round and round, repeating their peculiar cry 'twit twit' incessantly, and are said to feign lameness, like the lapwing, to decoy the intruder away. Pennant gives the following dimensions of an *avoset* which he shot:—'Length to the end of the tail eighteen inches, to that of the toes twenty-two, the breadth thirty.' The weight was thirteen ounces.

The plumage is black and white.* The bill is black, and the legs and toes are of a pale blue, or blueish grey.

AVOYER is a term derived from the Latin *advocatus*. *Avoué* or *Avoyer* was no doubt a French form or corruption of *advocatus*, and was applied in general to the lay champion or guardian of the church. In South Germany and Switzerland, however, a country so antiently and universally of ecclesiastical organization, the officers who ruled as deputies of the emperor were induced to designate their authority by the title which was most general in the country, viz., the title implying ecclesiastical authority. Thus we find in the beginning of the thirteenth century, Berthold, Duke of Zœringen, styled the emperor's *advocatus* in these regions, and Rodolph afterwards was advocatus of Suevia. This term, half Germanized, half Gallicized (for the Burgundians then governed the plains of Western Switzerland), became in common parlance *Avoyer*, and was assumed by the magistrates of such towns as had attained the rank of *Imperial*. This meant that they belonged nominally to the emperor, which privilege rendered them independent of, and on a level with, the feudal aristocracy. The magistrates of Swiss cities assumed the title of *Avoyer*, but the title sunk every where into disuse, except at Berne, in which town it lasted till the revolution of 1794.

AVRANCHES, a city in the department of Manche, in France, on the south bank of the little river Sée or Séez. The distance from Paris through Caen is 195 miles; 48° 41′ N. lat., and 1° 25′ E. long.

Avranches is delightfully situated on the side of a hill, with the ruins of the cathedral crowning the summit. The river winds at the bottom of the hill, and falls into the sea two or three miles below the town. The tide flows up to the bridge over the Sée at the foot of the hill on which the city is built; and brings up with it a quantity of sand, which the inhabitants of the surrounding district use for manure. The valley of the river is covered with fine verdure and with woods which reach quite down to the shore.

Before the Revolution, Avranches had, besides its cathedral, three parish churches, two or three monastic establishments, of which the Benedictine convent yet remains, a seminary for priests, a college, and an hospital. The cathedral, built in the eleventh century, was pillaged in the religious wars of the sixteenth century, and ruined during the Revolution. The republicans took the lead off the roof to convert it into shot; and the weather has completed the work of destruction. Mrs. Stothard, who visited it in 1818, says, that nothing remained but a few broken arches and pillars, with a heap of stones. A flat stone, with a cup engraved upon it, marks the spot where King Henry II. did penance, in 1172, before two of the Pope's legates, for the murder of Becket. According to the last edition of Malte Brun's *Géographie Universelle* (Paris, 1832), a single pillar and the above-mentioned stone are the only relics. From a raised platform or terrace, in front of the cathedral, there is a very extensive prospect over sea as well as land.

Small vessels can get up the river as far as the bridge. Hemp, flax, lace, and cotton, are among the articles of trade: but the city does not appear to possess any manufacture worthy of particular notice. There are a good high-school (*collège*), a library of 25,000 volumes and 204 manuscripts, and a botanic garden. The number of inhabitants is about 7000. Many English families appear to have settled here after the peace of 1814.

Avranches was known during the Roman dominion in Gaul under the name of Ingena, and afterwards by that of Abrincatui, from the people whose capital city it was. From Abrincatui the name was changed into Abrincæ, and finally into Avranches. As being in Normandy, it was under the dominion of the first English monarchs of the Norman and Plantagenet races; and was considered as one of the bulwarks of Normandy against the Bretons. These, however, took it in 1203, and razed the castle and walls. These last were afterwards restored; and the place was further strengthened by St. Louis of France, into whose hands it had come. It fell again under the power of the English, during the war carried on by Henry V., and during the reign of his successor Henry VI.; but was recovered from them by the French in 1450. In the religious wars of the sixteenth century, Avranches was taken by the Huguenots, who pillaged the churches. It subsequently embraced the party of the League, and was, after a brave defence, taken by the troops of Henry IV.

The diocese of Avranches was established, it is supposed, about the year 400; but the precise æra is not known. It was small, containing only 180 parishes: the bishop was a suffragan of the archbishop of Rouen. Among those who held this see, was the celebrated Pierre Daniel Huet. The diocese does not exist now; but the town, with the rest of the department, is in the diocese of Coutances.

Avranches is the capital of an arrondissement in which are the towns of Granville, [illegible], and Pontorson. The

surface of the arrondissement is given at 475 square miles, or 304,000 acres; and the number of inhabitants in 1832 was above 110,000.

The district of Avranchin was one of the subdivisions of Normandy, and included the basin of the little rivers Celune and Sée. The Couesnon divided it from Bretagne or Brittany. The Sée and the Couesnon are navigable as far as the tide flows up, which is not above three or four miles, if so much. The climate of this district is mild, but somewhat humid. Its mildness is attested by the circumstance that peach trees are grown as standards; while about Cherbourg, in the northern part of the department, they are grown only against a wall. Flax, hemp, corn, and fruit, are the chief productions. Cider is made in considerable quantity, and is in good repute; but no wine is made. A good deal of salt is manufactured on the coast.

(Mrs. Stothard's *Letters written during a Tour in Normandy, &c.*; Malte Brun; Expilly, *Dictionnaire Géographique des Gaules et de la France, &c.*)

AWARD. [See ARBITRATION.]

AWATSKA BAY is a capacious basin on the eastern coast of Kamtchatka, lying in the bight between Cape Gavaria and Chepoonski Noss, and the only good harbour in the whole peninsula. The entrance, which is N. by W. true, is four miles in length, and one and a half in breadth at the narrowest part. The land is high on both sides, and the succession of bluff points, with alternate sandy bays, produces a very pleasing effect. On the S.E. point of the entrance is a small fort and lighthouse; the latter is only used when the annual visit of vessels from Europe is expected with supplies. This entrance leads into a large basin, about thirty miles in circumference, within which are the three harbours of Rakoweena, Petropaulovski, and Tareinski. The bay is bounded by high and well-wooded land on all sides, except to the N.W., where the rivers Awatska and Paratounca discharge themselves among swamps and shoals. The general depth of water is from twelve to fourteen fathoms, the bottom level, and of soft mud.

The bay abounds in fish of the finest quality, which constitute the principal food of the inhabitants, and the whole of their short summer is employed in catching and curing a supply for the winter. Salmon, trout, herring, flounders, and smelt are the most plentiful: the salmon are particularly large and fine; they are cured by drying, without salt, that article being scarce and dear.

In June the snow still lies even on the low land, but the change of seasons during the early part of July is very rapid: summer advances without the intermission of spring, and the transition to winter about the beginning of October is equally sudden. The bay is generally covered with ice during the winter, and the thermometer falls sometimes as low as $-28°$ of Fahrenheit; the range during the first fourteen days of July was from $44°$ to $71°$, mean temp. $55°$.

About twenty miles to the northward are three very high mountains, the highest of which is nearly 12,000 feet above the sea; the central one is a volcano (of which there are several on the peninsula): these mountains may be seen at the distance of 150 miles. The country is generally filled with mountains, whose sterile sides present vast strata of grey limestone; agate, jasper, serpentine, asbestos, amethystine quartz, and other crystallized rocks, are found, with many fossils, to which the volcanic action has added the various lavas. The soil of the valleys is a dark rich mould, but as the sea supplies the inhabitants with their chief sustenance, they have no necessity to cultivate the land; a small quantity of rye, with a few potatoes and cabbages, is all that is produced by their labour.

Within the entrance is the harbour of Rakoweena, about four miles deep, and one and a half wide at the entrance, narrowing towards the head. It has depth of water for the largest vessels, but a shoal lies across the mouth, leaving only a narrow channel on each side of it, so that vessels can only enter with a fair wind.

Two miles to the northward of this lie the town and harbour of St. Peter and St. Paul, or Petropaulovski (pronounced shortly Petropaulski), now the capital of the province, and residence of the government and the commercial agents, who have removed from Bolcheresk, which is about ninety miles to the westward. There are two small forts for the protection of the harbour, a good hospital, and a school. The town, which formerly consisted of a few huts on the sandy spit across the harbour, is now situated at the head of this snug little landlocked basin, which is capable of containing six or eight ships of the line in the most perfect security. The town, from being built without any regard to regularity, has but a poor appearance: the houses are all constructed of logs; on the upper side of each log a groove is cut to receive the next, and a notch at each end for the transverse log, the ends being allowed to project some inches, and the interstices filled up with moss, which renders the dwelling proof against the weather. They are for the most part thatched, the entrance is intricate, and the visiter has to pass several doors previous to reaching the apartments, which are warmed by hot air conveyed through pipes from a large fireplace or oven in the centre of the building. The excessive cleanliness which pervades the interior of these dwellings amply compensates for the deficiency of external beauty. As a substitute for glass, large plates of mica, brought from Siberia, are used by all classes, except in the governor's house and the public buildings. A new church, in the oriental style, has lately been built near the beach. It is entirely of wood. The chief instrument employed in the construction of these buildings is a long knife, which the natives use with great dexterity. Most of the houses have gardens attached for rearing a few vegetables: in the governor's, at the time when we visited it, there were peas, beans, lettuces, radishes, and cabbages. The population of the town in 1826 was about 400, exclusive of the military; that of the peninsula 1900 males and 1700 females, including the Aleoutski and Koriacs. Every family has one or two milch cows.

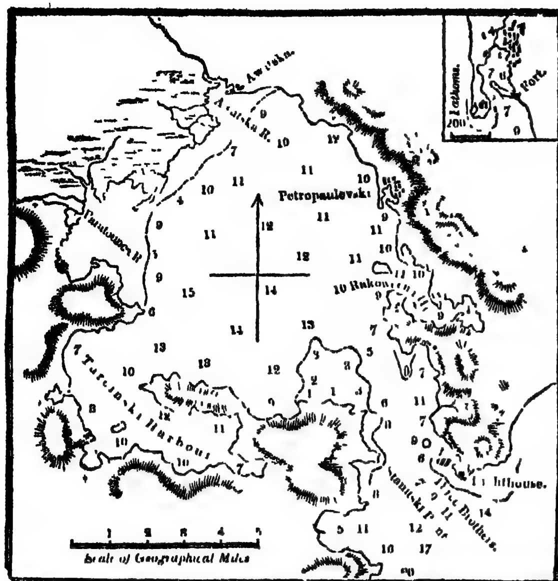
Travelling is performed on sledges, formed of a light latticed seat, sufficient to hold only one person with his skins and provisions, curving up at each end, and fixed by four legs on two flat pieces of beech, eight feet long and four inches broad, and distant from each other about eighteen inches, also turning up a little at each end. On this vehicle, which is stained red and blue, and adorned with bits of coloured cloth, leather, tassels, &c., the native sits sideways, one foot on the piece of beech, the other provided with a sort of shoe attached to the vehicle by thongs. For the purpose of stopping it, they have a long stick armed at the point with iron, which they plunge into the snow at the fore part of the sledge: the upper end of it is provided with bells, which are shaken to urge the dogs to greater speed. To the vehicle are attached five, seven, or more dogs, always an odd one as a leader, and they are guided by word of mouth. These dogs are of the wolf breed; they are ferocious, and burrow kennels for themselves in the snow, or under knolls of earth, and are fed generally on fish. They are very valuable, a good leader being worth 200 roubles, a large sum in Kamtchatka. The same set of dogs will travel at the rate of eighty miles a day for two or three successive days.

The Russians have been so long residents among them, that the native Kamtchadales are rarely seen in the town, which they only visit for the purpose of bartering the produce of their hunting for spirits, tobacco, and iron implements, a supply of which is brought annually from Okhotsk, in the vessels which carry away the collection of furs made during the winter. Sable skins are chiefly sought; they are worth from twelve to twenty roubles in the town, and, with the exception of the sea-otter, which is scarce, is the only valuable fur obtained; these two kinds are highly prized in China, their principal market. There are also foxes and wolves, and bears are very numerous, chiefly brown.

There are two posts from Petropaulovski to St. Petersburgh in the year, one in April, *via* Bolcheresk and Okhotsk, which takes four months; the other, in November, requires eight months, as the sea of Okhotsk is so obstructed with ice as not to be navigable, and the whole journey must be performed by land, making the circuit of that sea.

Birch, poplar, and alder are the principal trees: there are also willows. From the bark of the birch the natives make domestic vessels for holding their milk, butter, &c. There are various sorts of berries growing wild, the whortle and cranberry very plentiful, and a wild garlic, of which the cattle are very fond, but which impregnates strongly the milk and butter with its unpleasant savour. The saranna, a bulbous root, grows wild in great abundance: of this the natives are very fond: when roasted, it serves as bread; when boiled, for potatoes: it has rather a bitter taste, but is very nourishing.

At the head of the bay is the river Awatska: it is nearly a quarter of a mile broad at the entrance, but soon gets nar-



[From Captain Beechey's Survey—Depth of water in fathoms.]

row. It is very rapid, especially at the season of the snow-melting, and is said to continue its course 100 miles in a N.W. direction, but is so shallow even at its mouth, that it is only navigable for canoes. The small village of Awatska, consisting of eight or ten houses, is situated on the eastern point of entrance.

About five miles S.W. of this is the small river Paratounca, and the land between these two rivers is very low and swampy.

In the S.W. part of the bay is the spacious and commodious harbour of Tareinski, ten miles long, and three broad, affording every convenience for a civil and naval establishment of the largest kind, free from danger, easy of access, in short leaving nothing to be wished for as a harbour. In consequence of the high land, squalls arise with great violence, which must be guarded against, and the winds are very variable in the bay; but should the progress of commerce put the Pacific on an equality with the Atlantic as to trade (against which no reason can be urged), Awatska Bay must take its rank as one of the first in the world. The lighthouse at the entrance is in 52° 52′ N. lat., 158° 47′ E. long. Variation of the needle 4° 45′ E.; inclination, 64 02′.

The tides are regular and strong: it is high water, at full and change, at 3 hours 30 min. P.M.; the rise in the springs is 6½ feet, in the neap 2½ feet. In the entrance the eddies are very strong.

AWE, LOCH, a fresh-water lake in Scotland, in the county of Argyle. It divides, for a part of its extent, the district of Lorn from that of Argyle Proper. From the head of the Loch (which is not above three or four miles eastward from the head of the inlet called Loch Craignish) the sheet of water extends in a north-eastern direction, without much winding in its shores, to the point where it receives the river Urchay, a distance of about twenty-three miles, measured on Langland's Map of Argyleshire; or twenty-four, measured on the Map of Scotland published by the Society for the Diffusion of Useful Knowledge. The breadth, on an average, very little exceeds a mile, measured on Langland's and the Society's Maps, and the greatest breadth is about a mile and a half. If we include the bay or recess from which the Awe flows, as mentioned below, we shall have nearly three miles for the greatest breadth. The *General Report of Scotland* gives twenty-five miles as the length, and the average breadth at about a mile; but *The Beauties of Scotland*, Playfair's *Geographical and Statistical Description of Scotland*, and Webster's *Topographical Dict. of Scotland*, give the length as thirty miles.

It receives several small streams from the mountains and hills which surround it. The account given in *The Beauties of Scotland* states that it receives a considerable river at each extremity; but this seems to be an error as far as regards the south-west extremity, which we have spoken of above as 'the head.' At the north-east extremity it receives the Urchay, or Orchy, which comes from the north-east, and drains Glen-Urchay, or Glenorchy. On the north-west side, near the middle, it receives a stream from Loch Aich, a small lake about five or six miles long, and for the most part less than one broad, being distant from two to four miles north-west from Loch Awe.

Near the north-east end of Loch Awe there is a small bay running to the westward, which terminates in a river (the Awe) which enters Loch Etive, an inlet of the sea at Bunaw. From the entrance of the inlet to the mouth of the river is about eight or nine miles (Langland's and Society's Maps); the length of the river alone, without the inlet, is about seven miles.

The surface of the loch near this part is studded with small islands, as Inishail, Froach-Elan, Inish-Chonnel, Inish Eraith, &c. On Inishail are the ruins of a small Cistertian convent, with its chapel, and on Inish Eraith the remains of a chapel. On Froach-Elan are the remains, now trifling, of a castle, granted by King Alexander III. of Scotland to a chieftain, Gilbert M'Naughton, on condition of his entertaining the king whenever he passed that way. Inish-Chonnel was for several centuries a residence of the family of Argyle. On a rocky point of land jutting out into the loch, and connected by a flat wide meadow, evidently alluvial, with the higher shore, stands Castle Kilchurn, whose square tower was built in 1440 by one of the Campbells, an ancestor of the Breadalbane family. Successive additions were made to it; and it was garrisoned, during the rebellion of 1745, by a party of the king's troops, but has been since then going to decay. It is pre-eminent in the western Highlands, no less from its magnitude and the perfect state of the ruins, than from the very picturesque arrangement of the buildings.

At this end of the loch are all its chief natural beauties. Dr. M'Culloch, in his *Highlands and Western Isles of Scotland*, says that 'the only interesting part of this lake is that which lies between its upper extremity in Glenorchy and its exit. . . . . To the mere traveller there is no inducement to pursue this long lake throughout its extensive course, as it lies in a dull and uninteresting tract of country. . . . . In approaching from Inverary the first views of the lake are very striking, and, I may add, equally magnificent and wild. They are very different in character from those which appear in approaching from Tyndrum (an inn in Perthshire, from which you go by Glenorchy to the lake), the water appearing to be a confined basin inclosed among lofty mountains, rude and savage in their aspect, but lofty and grand; filling at once the eye and the picture, and literally towering to the clouds. It is the elevated ridge of Cruachan which forms the distant boundary: majestic and simple, and throwing its dark shadow on the water, which, spacious as we know it to be, seems almost lost amid the magnitude of the surrounding objects. The castle of Kilchurn, hence a mere spot in the landscape, adds much to the sublimity of the effect, as affording a scale and an object of comparison.'

Cruachan is a mountainous ridge, which presents some of the finest and most extensive mountain views in Scotland. It is computed to be thirteen or fourteen miles in circuit, sloping gently on the side towards the lake, except near the summit, where the ascent is more abrupt. The summit is divided into two points, each resembling a sugar-loaf. The height is 3669 feet above the level of the sea. The sides are covered with natural woods.

Loch Awe is estimated to be 108 feet above the level of the sea; like Loch Ness and some other lochs in Scotland, it is seldom subject to freezing. Its waters abound with the most delicious fish. The salmon are remarkably good, and the trout nearly unrivalled, and of all sizes, up to twenty pounds weight. There are also some char, and many eels; but these last the Highlanders hold in abhorrence, esteeming them water-serpents, unfit for the use of man. Loch Avich, which may be considered as an appendage of Loch Awe, is full of trout, and is the resort of gulls, cranes, eagles and wild ducks.

At Bunaw, at the mouth of the river Awe, there is a quay for small vessels, which carry pig-iron, tanners' bark, kelp, and salmon to Whitehaven, Liverpool, &c., and import iron ore for the furnaces at Bunaw, meal, coals, leather, &c.

The name *Aw* denotes water, or a river. The loch, and the river which forms its outlet, both bear it; and it is incorporated in the names Bun-aw and Inver-aw. (M'Culloch's *Highlands and Western Isles of Scotland*; Sir John

Sinclair's *General Report of Scotland;* Playfair's *Geog. Description of Scotland.*)

AWN or ARI'STA, in Botany; the beard of grasses, is a rigid, often hairy, and frequently twisted bristle, proceeding from the back of some of the envelopes of the flower. It is often employed for systematic purposes, in consequence of the number of modifications to which it is subject. It appears to be one of the veins or ribs of the envelopes, unusually lengthened, and separated from the cellular substance to which it belongs.

AX or AXE, a small river rising close to a farm called Axnoller, near Chedington in Dorsetshire, and flowing through Somersetshire and Devonshire into the English Channel. Its course is at first westward about 11 miles: it then turns to the S.W., and flows 5 or 6 miles, to Axminster, to which it gives name. From thence it flows, first to the S.W. and then more to the south, about 9 miles, into the sea, near the village of Axmouth. Its whole course is thus about 25 or 26 miles. It flows through a deep valley between high hills. Its principal tributary is the Yart or Yarty, which rising in Staple hill, just within the border of Somersetshire, flows almost due south about 14 miles, and joins the Ax below Axminster.

There is another river Ax in Somersetshire, which rises in the S.W. slope of the Mendip Hills, in Wokey or Wookey Hole, about two miles from Wells. From its source it flows first to the S., and then turning N.W. runs parallel to the range of hills in which it rises, into the Bristol Channel. Its whole course is about 24 miles. It gives name to the town of Axbridge, which however is about a mile from the bank, about mid-way between the source and outfall. It receives the Chedder water, which rises from the base of the Chedder Cliffs [see CHEDDER], and flowing between the town of Axbridge and the river Ax, joins the latter a little lower down. The lower part of the course of the Ax is through marshes. (*Ordnance Survey of Great Britain;* Skrine's *Rivers of Great Britain.*)

AXBRIDGE, an ancient corporate town in the hundred of Winterstoke, county of Somerset, seated in a rich level close under the Mendip Hills, 130 miles W. by S. of London, and 10 miles N.W. of Wells. It is a place of little importance, and the only manufacture is of knit stockings. The town consists of one street about half a mile long, running in a winding direction nearly east and west. It has a good market for corn, sheep, pigs, &c. on Saturdays, and two (or according to some three) fairs in the year. The market-house and shambles are near the east end of the town, as is also the church, which stands on an eminence on the east side of the market-place. It is in the form of a cross, and has a nave, a chancel, and north and south transepts; a chapel on each side the chancel, and a lofty tower at the western end. On the west side of the tower, in a niche, stands the statue of a king with his sceptre, and on the east side a bishop in his pontifical vest. The living is a rectory in the gift of the Bishop of Bath and Wells. The manor was once a demesne of the crown, and was given away by King John.

Near the town the river Ax is crossed by a wooden bridge supported by stone piers, the remains of a more antient structure. Axbridge, as already noticed, is a corporate town: the members of the corporation are a mayor, recorder, town-clerk, ten aldermen, and twenty-two burgesses; out of whom are chosen a sheriff, serjeant-at-mace, and constables. Axbridge sent members to parliament in the reigns of Edward I., II., and III., and was then excused at its own desire. The population in 1831 was 998; and the number of houses 179, of which six were uninhabited. (Collinson's *History of Somersetshire.*)

AXHOLME, or AXHOLM, ISLE OF, a river-island in the county of Lincoln. It is bounded on the eastern side by the Trent, and on the northern and north-western sides by the old river Don, which flowed by Crowle, Luddington, and Garthorpe, into the Trent, and formed in part of its course the boundary between Lincolnshire and Yorkshire. The old rivers Torne and Idle formed the western boundary; and the antient Bykersdyke, or Vicardyke, which runs from the Idle to the Trent, may be regarded as completing the circuit. In early times the old Don was navigable, and boats could pass by it into the Trent. (See Dugdale's *History of Embanking and Draining.*)

The isle of Axholme is about seventeen or eighteen miles long from N. to S.; and, on the average, five or six miles broad from E. to W., except in the northern part, where it becomes narrower and ends in a point. It includes a small portion of the county of Nottingham in its circuit, namely the village (and probably the township) of West Stockwith. Leland in his Itinerary (drawn up in the reign of Henry VIII.) gives the dimensions of Axholme as ten miles in length, and six in breadth.

The name Axholme is a corruption of Axel-holme; formed from the name of the principal place Axel (now Haxey, a mere village), and the termination *holme*, which was used by the Saxons to denote a river-island.

In the middle ages, and indeed till within the last 200 years or thereabouts, Axholme was covered in a great degree with marshes, especially in the western and southern parts. At a remote period it was a forest, part perhaps of the great forest of the Brigantes who inhabited Yorkshire. This will appear by the following extract from the work of Sir William Dugdale already referred to, which was published in 1662:—

'Being now come into Lincolnshire, I shall first begin with the Isle of Axholme, which for many ages hath been a fenny tract, and for the most part covered with waters; but more antiently not so: for originally it was a woody country, and not at all annoyed with those inundations of the rivers that passed through it, as is most evident by the great numbers of oak, fir, and other trees, which have been of late frequently found in the moor, upon making of sundry ditches and channels for the draining thereof; the oak trees lying somewhat above three foot in depth, and near their roots, which do still stand as they growed, namely, in firm earth below the moor; and the bodies for the most part N.W. from the roots, not cut down with axes, but burnt asunder somewhat near the ground, as the ends of them, being coaled, do manifest. Of which sort there are multitudes, and of an extraordinary bigness—namely, five yards in compass, and sixteen yards long; and some smaller of a greater length, with good quantities of acorns near them; and of small nuts so many that there have been found no less than two pecks together in some places.

'But the fir-trees do lie a foot or eighteen inches deeper; of which kind there are more than of any other, many of them being above thirty yards in length: nay, in the year 1653, there was a fir pole taken up by one Robert Browne, of Haxey, of thirty-six yards long (besides the top), lying near the root, which stood likewise as it grew, having been burnt and not hewed down; which tree bore at the bottom ten inches square, and at the top eight.

'About twenty years since, also, in the moors at Thurne (near five foot in depth), was found a ladder of fir of a large substance, with about forty staves, which were thirty-three inches asunder; but so rotten, that it could not be gotten up whole. And in Haxey Carr, at the like depth, a hedge with stakes and bindings.

'The truth is, that there are so great a number of trees thus overgrown with the moor, through a long time of stagnation by the fresh waters in these parts, that the inhabitants have for the space of divers years last past taken up at least two thousand cart-loads in a year.

'As to the time when this woody level (which extends itself into Dikes Marsh and Hatfield Chase in Yorkshire) became first thus overflowed I can say nothing, there being not any memorial thereof transmitted to us from the light of history or records; but that it hath been so for divers hundreds of years the depth of the moor doth sufficiently manifest, which could not in a few ages grow to that thickness it is of. Howbeit, as to the occasion thereof, I may rationally conclude it to have been through the muddiness of the constant tides, which, flowing up [the] Humber into [the] Trent, did in time leave so much silt [or sea sand] to obstruct the currents of [the] Idle, [the] Don, and other rivers, that, having not their free passage as formerly, they flowed back, and overwhelmed that flat country with water, insomuch as the high ground became an island, as it is still [we see] called; and a place so defensible, in respect of the spaciousness and depth of the waters environing it, that Roger Lord Moubray, an eminent baron of this realm in King Henry II.'s time, and then lord thereof, adhering to young Henry upon his rebellion in those days, repaired thither and fortified an old castle, which had been long ruinous; for reducing whereof to the king's obedience the Lincolnshire men, having no other access thereto, transported themselves by shipping in the year 1174 *. So like-

* The ruins of this castle (which was near Kenard's ferry over the Trent) are described by Leland as on the south side of the churchyard of Oxton (now Owston). The castle was taken on the occasion above-mentioned and rased,

wise in [the] 50[th year of] H[enry] III., after the battle of Evesham, wherein the rebellious barons were discomfited, some of them fled hither as to a place of security, for the reasons above expressed. But after that time it was not long ere the inhabitants of these parts, imitating the good husbandry of those in other countries, who had by banking and draining made good improvements in such fenny places, did begin to do the like here; for in [the] 1[st year of King] E[dward] III., I find that Robert de Notingham and Roger de Newmarch were constituted commissioners to view and repair those banks and ditches, as had been made to that purpose, which were then grown to some decay.' (ch. xxvii.)

Many commissioners were appointed for a like purpose in after times, but still a vast extent of marshy waste remained in Axholme Island, in Hatfield Chase in Yorkshire, and in the neighbourhood, the whole forming a vast level. The impediment to the natural course of the rivers continued; and the water even in summer was in many places three feet deep, so that boats laden with plaster passed over Hatfield Chase, and large boats, with twenty quarters of corn in them, crossed the island from the Idle to the Trent. Sixty thousand acres were estimated to be thus overflowed. (Dugdale, as above.)

In the reign of Charles I., however, the drainage of this level was attempted on a large scale. It had, together with Hatfield Chase, come into the hands of the king as feudal superior; and he, in the second year of his reign (1626), concluded an agreement with Cornelius Vermuden, or Vermuyden, then of London, but by birth a Dutchman, a native of the province of Zealand, who undertook, with the support of many of his countrymen, to drain the marshes at his own charge, on condition of receiving one-third of the land so recovered, 'to hold of the said king, his heirs and successors, as of his manor of East Greenwiche, in free and common soccage.' The owners of all lands in the level were to receive compensation at the award of four commissioners, two to be named by Vermuyden, and two by the Lord Treasurer of England for the time being; persons having the right of common pasturage were to receive a compensation in land or money; and a corporation was to be appointed by Vermuyden, and lands assigned by him, for the preservation of the works.

The work was forthwith entered upon, and completed within the space of five years, at a cost of 55,825*l.*: 'the waters which usually overflowed the whole level being conveyed to the Trent through the Snow sewer' (in the southern part of the island) 'and Althorpe river' (which seems to include what are laid down in the maps as the new rivers Don, Torn, and Idle, for these empty themselves into the Trent near the village of Althorpe), 'by a sluice, which issued out the drained water at every ebb, and kept back the tide upon all comings in thereof.' (Dugdale, *ut supra.*)

The work was no doubt an excellent one; and Dugdale, specifying the advantages resulting from it, states that, since the draining of Haxey Carr *, a great part of it had been sown with 'rape and other corn' for three years together, and had borne plentiful crops; and that many houses had been built and inhabited in sundry places of the said Carr. The productiveness of the land may be estimated by the assertion that it had risen in annual value from sixpence to ten shillings, and from two shillings to thirteen shillings and fourpence per acre; that fifty quarters of rape seed had been got from ten acres; that the usual produce was three and a half quarters of wheat, three quarters of rye, and eight quarters of oats per acre; and that seven quarters of oats per acre had been obtained for six years together.

About two hundred families, Dutch and French (of the French Protestants who had taken refuge in Holland), settled in the recovered lands; and a chapel was built at Sandtoft, in the island, a spot previously consecrated by religious associations (a cell for one of the religious of the abbey of St. Mary at York had been once placed there), and central to the whole drainage. This was in 1634. Here service was performed in the French and Dutch languages. The original inhabitants made, however, considerable opposition to the whole work. Proceedings in the Exchequer Chamber were commenced, by the participants in the engagements of Vermuyden, against those persons of the manor of Epworth, in the island, who possessed the right of common on the waste of that manor (amounting to thirteen thousand four hundred acres); and at last the affair was referred to the then Attorney-General, Sir John Banks; but his award of six thousand acres to the commoners, to be preserved at the cost of 'the participants,' and of the remainder to 'the participants' for their own share and the king's, did not give satisfaction. This was in 1636. The freeholders were dissatisfied with the award; and the poor had lost the power of fishing and fowling in the marshes. Tumults arose, but were put down by the law; the evil disposition towards the new settlers, however, remained; and after they had continued about seven years in tolerably quiet possession of their lands, at the commencement of the great civil war a general attack was made upon them. In 1642, upon a report that Sir Ralph Hansby, who supported the king's cause at Doncaster with great zeal, intended to march into the island (the inhabitants of which were in the interest of the parliament), the flood-gates of the Snow sewer were pulled up by order of the parliamentarian 'committee' at Lincoln, the waters of the Trent overflowed the levels, and the new settlers were injured to the amount of 20,000*l.* In 1645, in consequence of great tumults and injury done to the settlers by the destruction of the banks, ditches, &c., on part of the Epworth common, the parliament made an order to the sheriff of Lincolnshire to protect them in the reparation of their works; but when he arrived in the isle he was forcibly obstructed by a body of four hundred men, headed by the commoners' solicitor, Daniel Noddell. Again, in 1650, when the award of Sir John Banks was confirmed, a still more violent riot took place. The rioters defaced the chapel at Sandtoft, demolished the little village which had been formed round it, destroying there and in the neighbourhood above fourscore habitations, besides a windmill and out-buildings, such as barns, stables, &c., and all the corn and rape growing on that part of the settlers' share of Epworth common which had not been attacked in the former riot.

During the Protectorate, the confusion in the island seems to have continued, and for half a century after the restoration of Charles II. a state of insubordination prevailed such as no other part of England at that time presented. Nearly three years after the original compact between the crown and Vermuyden, a further grant of the remaining interest of the crown in the level was made over to the latter, for a specified sum and a rent of about 620*l.* a year. This rent had been granted by Charles I. to the second Villiers, Duke of Buckingham, and upon his being declared delinquent, had been seized by the state. During the civil war, and the troubled times which followed, it had run much into arrear. In 1655, one Nathaniel Reading, a barrister (a man who, while making the tour of Europe, had engaged in the extraordinary affair of Massaniello, at Naples, and had been secretary to that personage), was appointed to collect the rent and the arrears, and to keep down the insurgents, which he engaged to do for 200*l.* per annum. In a memorial drawn up by him in the latter part of his life (1702) he states that he had obtained 'several writs of assistance, and orders of the House of Lords, and deputations from the sheriffs of the three counties *;' had provided horses, arms, and necessaries, with twenty hired men, and often more, with a surgeon in ordinary; and had, after thirty-one set battles, wherein many of his men were killed, wounded, and lamed, besides numerous mutual indictments, prosecutions, and actions at law, reduced the riotous inhabitants to obedience, repaired the church, settled another minister, and rendered the levels safe, quiet, and flourishing. In 1693, or 1694, his fences and corn were burnt; in 1696 he and all his family were nearly burnt in their beds by the islanders; and, notwithstanding his boast of having rendered the district quiet and safe, his son's crops were destroyed in 1712. Few probably suspect that such disorders could have occurred in England at that time for so long a period.

The litigation between the 'commoners' of Epworth and the settlers continued till 1719. In 1691 a new decree was obtained, awarding to the commoners (including those of Misterton) 10,532 acres, and leaving only 2868 to the settlers. This seems to show that the award of Sir John Banks (who had indeed acted as the friend and adviser of Vermuyden throughout the whole proceedings) was unfair; and that the opposition, however violently conducted, was not groundless. But the commoners were not satisfied. They continued proceedings in Chancery till 1719, when

* Carr is a generic term for a morass. Hunter's South Yorkshire.

* Of York, Lincoln, and Nottingham.

their bill was dismissed with costs, and thus the affair ended. For fuller particulars we refer the reader to Sir William Dugdale's work already mentioned, and Mr. Hunter's *South Yorkshire.*

It may be mentioned, that Vermuyden himself retired from the concern, after sustaining considerable loss, before the year 1635; and of the foreigners who settled in the level, few, if any, of the descendants remain in the district at the present day.

The soil and natural productions of the island are thus described by Leland: 'From the west point of Bikers Dike up along (the Idle) to the great mere, the soyle by the water is fenny and morische and ful of carres (marshes). The residew is meately high ground, fertile of pasture and corne. The principal wood of the isle is at Bellegreve Park, by Hepworth (Epworth), and at Melwood Park, not far from Hepworth. There is also a praty wood at Croole (Crowle), a lordship a late longging to Selleby Monasterie. . . . . The fenny part of Axholm berith much *Galle*, a low frutex, swete in burning. The upper part of the isle hath plentiful quarres of alabaster (gypsum), commonely there caullid plaster: but such stones as I saw of it were of no great thiknes, and sold for a xijd. the lode. They ly yn the ground lyke a smothe table, and be beddid one flake under another; and at the bottom of the bedde of them be roughe stones to build withal.' (*Itinerary*, vol. i. fol. 40-42, edit. Oxf. 1770.) Camden, at the beginning of the seventeenth century, gives us substantially Leland's account; but he adds flax to the natural productions. The changes wrought by the draining of the great level have been already noticed. 'It was not till the farmers on these lands (of the great level) were more English than French or Dutch, that anything was cultivated but oats or rye; nor was it till the beginning of the last century that the plan was adopted of destroying the grub, the great enemy of the crops in low and watery lands, by lime, which then began to be brought in great quantities from Balby and Hexthorpe (near Doncaster). Flax, peas, beans, clover, and wheat, are now the produce of these lands.' (Hunter's *South Yorkshire.*)

Taking the island as a whole, the soil may be described as very fertile; and in the map prefixed to Mr. Arthur Young's *Agricultural Survey of Lincolnshire* (1799), it is included in the 'rich tract' which comprehends the sea-coast and fens of that extensive county. 'The soil of the isle of Axholm,' says that gentleman, 'is among the finest in England; they have black sandy loams; they have warp land (land formed of the rich mud, brought up by the rivers at high water); they have brown sands; and they have rich loams, soapy and tenacious; the under stratum at Haxey, Belton, &c., is in many places an imperfect plaster-stone.' In 1794, there were in the four parishes of Haxey, Epworth, Belton, and Owston, 12,000 acres of common in a wretched unprofitable state; but about the close of the last century an act was passed for inclosing them. When Mr. Young made his report (in 1799), the inclosure was on the point of beginning. At that period, he remarked a resemblance in the appearance of the country to some of the rich parts of France and Flanders. 'The inhabitants are collected in villages and hamlets; and almost every house you see, except very poor cottages on the borders of commons, is inhabited by a farmer, the proprietor of his farm of from four or five, or even fewer, to twenty, forty, and more acres, scattered about the open fields, and cultivated with all that minutiæ of care and anxiety, by the hands of the family, which are found abroad, in the countries mentioned.'

This will serve to show that the customs of the settlers of the seventeenth century had continued to influence their successors, after the names and families of the foreigners had become in a great degree extinct

To the agricultural produce already noticed, may be added potatoes, onions, rape, and hemp. Potatoes are cultivated to a considerable extent, but are not equal in goodness to those grown on the banks of the (Yorkshire) Ouse. The moors afford peat or turf for fuel. (See Stone's (1794) and Young's (1799) *Agricultural Reports.*)

The water in the low districts is almost every where brackish. At Haxey it is so hard that it is impossible to wash with it. If mixed with milk, and boiled, it causes the milk to curdle.

This island is in the west division of Manley Wapentake, and includes the seven parishes of Althorpe, Belton, Crowle, Epworth, Haxey, Luddington, and Owston. These parishes contain (see *Abstract of the Answers and Returns under the Population Act*, 1831) 46,980 statute acres, and had, in 1831, a population of 11,515 persons. The area of the township of West Stockwith, which, though in the isle, is in Nottinghamshire, we have no means of ascertaining: the population is 635; giving 12,150 inhabitants for the whole island. The most populous parishes are Crowle, 1889 inhabitants, or including the township of Eastoft, 2113; Haxey, 1868; Epworth, 1865; Belton, 1597; and Owston, 1409, or, including the township of West Butterwick and Kelfield, 2207. There are two market-towns, Crowle and Epworth. Crowle is 167 miles N. by W. of London, through Gainsborough, from which it is 18 miles distant. The weekly market which was held on Saturday has been discontinued; but during the spring (from March to May), there is still a cattle market on Monday in every alternate week; there are also three fairs, for cattle, flax, and hemp. The petty sessions are held here. The church, which is very antient, presents a fine specimen of Norman (or, as many term it, Saxon) architecture. The living is a vicarage. There is a charity school, supported partly by endowment, partly by subscriptions; and two meeting-houses, one for the Wesleyans and one for the Independents. The Stainforth and Keadby canal, which crosses the island and connects the Don with the Trent, passes within a mile of the town.

Epworth is 7 miles south of Crowle, and 11 N. by W. of Gainsborough. It is a long straggling town, the inhabitants of which are chiefly employed in spinning flax and hemp (which, as observed above, are grown in the island), and in the manufacture of sacking and bagging. The market is on Thursday, and there are two fairs in the year. The living, a rectory in the gift of the Crown, was held for many years by the Rev. Samuel Wesley, the father of the celebrated John Wesley, the founder of the Wesleyan Methodists, who was born here; as was also his brother and coadjutor, Charles Wesley.

Haxey, once the principal place in the island, is now a mere village.

Axholme is in the diocese of Lincoln, and (except the township of West Stockwith) in the archdeaconry of Stow.

At Milnwood, or Milwood Park, near Epworth, stood what Leland describes as the right fair monastery of the Carthusians, where one of the Moubrays, Dukes of Norfolk, was buried in a tomb of alabaster. It was founded in the reign of Richard II. by Thomas Moubray, Earl of Nottingham, and Earl Marshal of England, afterwards Duke of Norfolk. At the dissolution, its revenue was valued at 290*l.* 14*s.* 7½*d.*, or 237*l.* 15*s.* 2½*d.* clear of all deductions. The monastery itself was converted into a manor house. There was also a small cell or priory at Hyrst, in this island, founded by Nigel de Albini in the time of Henry I.; the revenue of which was valued, at the dissolution, at 7*l.* 11*s.* 8*d.* Scarcely a fragment of the buildings is remaining. (Dugdale's *Monasticon Anglicanum.*)

The Moubrays had a castle at Haxey; but we are not aware that any remains of it exist.

In the *Philosophical Transactions*, vol. xliv., part ii. (1747) p. 571, is a singular account of the body of a woman dug out of the moor of Amcotts, in the parish of Althorpe, in this island. It had very antient sandals, and the skin of the body was completely tanned, so as to stretch like doe leather, which it equalled in strength. This was caused, it is supposed, by the influence of the moor-water, which is (or was then), by the great quantity of oak and fir timber, turned to a coffee colour. In the same paper it is added, that the oak-wood dug up (as noticed in our extract from Sir W. Dugdale) is as black as jet; that the fir-wood retained its turpentine smell, and that, when exposed to the sun in hot weather, the turpentine would drop from it. No worm would touch this wood.

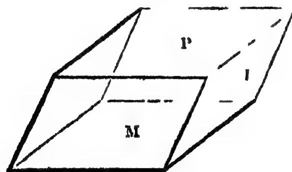
AXIL'LA, in Botany, is the angle formed by the separation of a leaf from its stem; hence the term *axillary* is applied to any thing which grows from that angle. It is at this point that buds appear, whether they are to be developed as branches or as flowers; and it is a remarkable circumstance that they never appear anywhere else, except when they are adventitious, and unconformable to the usual order of growth. For this reason the position of buds upon a branch will show in what position the leaves have grown, notwithstanding the leaves themselves may have fallen off, and the scars whence they fall have disappeared.

The axillæ of all leaves contain rudiments of a bud in a greater or less degree of perfection, and are capable, under favourable circumstances, of bringing it to full development. Gardeners sometimes profit by a knowledge of this law, to propagate plants in which, from the close manner in which the leaves are arranged upon the stem, it would be impossible to increase them by the ordinary modes. Thus a hyacinth bulb is a short branch with rudimentary leaves, called scales, growing closely over all its surface, and consequently at the axilla of each rudimentary leaf there exists a bud either latent or manifest. Under ordinary circumstances, two or three only of those buds develope near the outside of the bulb, in the form of *cloves*, or young bulbs; but if, at the time when the bulb is just beginning to grow, the central shoot is destroyed, either by cutting it across or searing it with a hot iron, the nutritive matter which was laid up in the bulb, not being expended upon producing flowers and leaves, will be diverted into other channels, and exercising its vital force upon the axillary buds, will cause them to develope in great numbers, and thus the hyacinth will be increased with rapidity, instead of by the slow production of two or three cloves yearly.

Although buds, or bulbs, which is the same thing, are universally axillary to leaves, and, indeed, to every part which is theoretically a modification of a leaf, yet one leaf cannot be axillary to another leaf, although it may seem so in consequence of the incipient development of an axillary branch to whose system it belongs. Thus, in pine trees the clustered, needle-shaped leaves seem to be axillary to the withering rudimentary leaf that grows round their base, but in reality each cluster of leaves is a small branch without perceptible axis, as is proved by the cedar of Lebanon, where the axis sometimes lengthens and sometimes does not.

AXINITE. This mineral usually occurs crystallized in flat, prismatic crystals, with very sharp edges, from which it has received its name. The fundamental form is a double oblique prism, from which Neumann has obtained the following angles:—

M on T = 135° 24′ and 44° 36′
P on M = 134° 48′ and 45° 12′
P on T = 115° 39′ and 60° 21′



It is imperfectly cleavable in the direction of the faces P and M. Its colour is clove-brown, sometimes inclining to plum blue, sometimes transparent, at other times only translucent on the edges, its lustre is vitreous. The specific gravity of a crystallized variety from Cornwall is stated by Mohs to be 3·271, and its hardness 6·5 to 7.

Before the blowpipe it readily fuses with intumescence into a dark green glass, which in the oxidizing flame becomes black on account of the presence of super-oxides of manganese. With borax the glass is either green from iron or of an amethyst tint from manganese, according as it has been exposed to the interior or exterior flame of the blowpipe. By fusing it with sulphate of ammonia and fluor-spar, the presence of boracic acid may be detected. The following is an analysis by Wiegmann of a variety from Treseburg, Harz:—

Silica	45·00
Alumina	19·00
Lime	12·50
Peroxide of iron	12·25
Peroxide of manganese	9·00
Magnesia	0·25
Boracic acid	2·00
	100·00

Berzelius, however, has marked the iron and manganese as protoxides.

This mineral is not very abundant: it is found at Thum in Saxony, whence it is sometimes called Thumerstone. It occurs at Botallack near the Land's End, Cornwall, both crystallized and forming a rock with tourmaline and garnet.

AXIOM, a word derived from the Greek ἀξίωμα, which is formed from the Greek verb ἀξιόω, *to think worthy of*, and thence to *desire* or *demand*. It was not used in the time of Euclid, by whom the principles which we call axioms are termed *κοιναὶ ἔννοιαι*, or *common notions*. The word was not in universal use as late as the year 1600, at which date we find '*communis sententia*' preferred to '*axioma*.' (See Chambers' edition of *Barlaam*, Paris, 1599.)

The term axiom was originally peculiar to geometry, in which science it means a proposition which it is necessary to take for granted. It is usual to define an axiom as a *self evident proposition*; but this, though a true description of all the axioms which are found necessary, is not a good definition. In the first place, it is well known that the geometer must deduce the properties of space in the best way he can, from the smallest possible number of the most evident principles, and it must be his study so to choose them, that his own mind, or that of his pupil or opponent, shall be at the least possible expense of concession. But he cannot say beforehand that his science *shall* be deduced from self-evident principles. Imagine a person of cultivated reasoning powers first approaching geometry, and capable of being made to take a view of the general objects of the science. It would not appear to him certain that he should be able to deduce all the properties of figure from those which are self-evident; on the contrary, he might suspect that he would be obliged to have recourse to actual measurement, in order to verify some essential preliminaries. At least no answer could be given to him if he did express such a suspicion, except a reference to the science itself; and this clogs an axiom, defined as a self-evident proposition, with a condition which can only be verified by subsequent study.

In the second place, a self-evident proposition, as such, ought not to be called an axiom because it is not admitted as such in geometry, however evident it may be, provided it can be proved from those propositions which *are* called axioms. That two sides of a triangle are greater than the third, has a greater degree of evidence than some of the admitted axioms, yet it is not taken for granted, because it can be deduced from these.

The Epicureans are said to have laughed at geometry because, among other things, it proves the proposition that two sides of a triangle are greater than the third, which, said they, is evident even to a jackass, who always makes practical use of it in going from one place to another. This evidently arises from the mistake that a geometrical axiom is self-evident, and that all self-evident propositions ought to be axioms. And the oldest remaining opponent of geometry, Sextus Empiricus, has a chapter upon the subject (*Pyrrhoniarum Hypotyposeôn*, lib. ii. cap. 11), on which, as on most other things of the same sort, it may be safely asserted, that the axioms of geometry themselves are much clearer than the axioms of metaphysics, on which the opposition to them is grounded. For it is not to be supposed that the opponents of axioms take first principles which are more evident than that 'the whole is greater than its part,' or that 'two straight lines cannot enclose a space.'

The necessity that there should be some axioms is evident from the process of reasoning. The deduction of propositions from the comparison of other propositions must have a beginning somewhere, so that there must be at least two propositions to begin with, the evidence of which is derived from other sources than reasoning. Every attempt which has been made to dispense with axioms altogether has, as might be expected, proved unsuccessful; somewhere or other in the process assumed theorems have been found.

The more modern discussions which have arisen about axioms appear to us to proceed from some fallacy of this sort, that the idea conveyed by the whole of a sentence must be more complicated than that conveyed by any one of its parts; or at least, that it must always be necessary to enter separately upon the consideration of the auxiliary forms of speech in which a simple idea is conveyed, before that idea can be said to be explained. As an instance, in that most simple of all propositions, 'two and two are the same as four,' which by itself is comprehended as soon as spoken, we have the (by itself) difficult phrase 'are the same,' implying identity, and leading, if pursued far enough, to many very abstruse metaphysical considerations. These, in their proper science, and considered with reference to other objects, are not misplaced; but, as applied to geometry, are not only unnecessary, but subversive of the natural order of

reasoning: for however much may be said upon maxims, axioms, first principles, or by whatever name they may be called, there remains the simple proposition, 'two and two are the same as four,' clearer, as a whole, than any one of the explanations, illustrations, or comments, which have been brought to its aid. There is, however, this to be said for many writers who have endeavoured to make such points better known than they are already, namely, that the older writers, in their love of what is called the *à priori* method, had filled their books with notions against which it was necessary to contend; whence sprung a confirmed habit of reasoning upon the nature of self evident propositions. Locke (book iv. chap. 7) *on Maxims* can hardly be intelligible to a reader who has not some knowledge of what the school writers have said upon our simplest perceptions, which rendered it necessary to contend both against words without meaning, as when they said some such thing as that 'knowledge is the likeness of the thing known, formed in the knowing faculty,' and also against errors, such as 'general propositions are known, at least sometimes, before particular ones.'

The axioms employed by Euclid, and which have been for the most part adopted by other writers on geometry, are evidently constructed with no very close attention to metaphysical distinctions. Among them we include the *postulates* (which really come under our definition of axioms) which are called by a separate name, *αιτηματα*, *things demanded*. We give them at length.

Postulates.—1. Let it be granted, from any point to any point to draw a straight line. 2. Also, to lengthen a finished straight line, and continue it straight. 3. Also, with any centre and radius (*διαστημα*, meaning *interval measured from that centre*) to describe a circle.

Common Notions. 1. Things equal to the same are equal to one another. 2. Also if equals be added to equals, the wholes are equals. 3. Also if from equals equals be taken the remainders are equals. 4. Also if to unequals equals be added, the wholes are unequals. 5. Also, if from unequals equals be taken, the remainders are unequals. 6. Also things which are double of the same are equal to one another. 7. Also things which are halves of the same are equal to one another. 8. Also things which fit one another (have the same boundary) are equals. 9. Also, the whole is greater than the part. [10. Also all right angles are equal to one another. 11. Also if a straight line falling upon two straight lines make the angles which are within and upon the same side less than two right angles, the two straight lines, being lengthened without end, shall meet one another upon that side on which the angles are less than two right angles.] 12. Also, two straight lines cannot inclose a space.

The two axioms, 10 and 11, inclosed in brackets, are in some copies placed among the postulates, and this we have no doubt was the true original, for it will be observed that they have no claim to be headed *κοιναι εννοιαι* (common notions), being propositions of some little intricacy, though they are *αιτηματα*, things demanded as necessary to establish the succeeding propositions. There is nothing in the words of Euclid which implies that he wished to separate 'problems granted without construction' from 'theorems granted without demonstration,' which is the distinction generally drawn between the words postulate and axiom.

The whole of the axioms may be divided into three classes:—

1. Those of which the truth is conveyed in the words themselves, and which could not be denied without altering the meaning of the words. These are the eighth and ninth of the 'common notions.'

2. Those which have no peculiar reference to geometry, but are true of all kinds of magnitude, as well as of spaces or lengths. These are the first seven of the 'common notions.'

3. Those which have direct reference to geometry. These are the three 'demands' or postulates, and the last three of the 'common notions.' What is required to be conceded in the three postulates, is not that a straight line or circle can be imagined to be drawn, in the sense usually attached to these words, but that the *geometrical* line can be drawn, which is *length without breadth*. This is impossible, mechanically speaking, the line being a conception of the mind which cannot be executed. [See LINE.]

The last of the 'common notions' is a self-evident property of the straight line, a term incapable of other definition than that which is contained in its properties; that is, we can make no use of the obvious notion conveyed in the words 'straight line,' unless we admit some one or other of its distinguishing characteristics, which is more definite than saying that it lies evenly between its extreme points. We might appear to avoid an axiom by saying, let the name 'straight line' be given to that species, no two of which can, under any circumstances, inclose a space; but in that case we should need another axiom—namely, we should require it to be granted that there is such a thing as the straight line so defined, and that we have not assumed any contradiction in supposing the above species of lines to exist. It must be remembered, that though the definitions are placed at the beginning in Euclid, it is not thereby implied that the terms defined are really possible. 'Let lines which, being in the same plane, do not meet, though ever so far produced, be called parallels,' does not mean us to assume that such lines do exist, but only, that when they shall have been proved to exist, the name by which it is agreed to call them has been given.

The axiom 10 is a theorem of more difficulty than the subject requires, since, with one additional assumption respecting the straight line, it admits of proof. The assumption previously discussed, namely, that two straight lines cannot enclose a space, amounts to assuming that if two straight lines coincide in two points, or if two different points of the one can be made to lie upon two different points of the other, the portions of the straight lines *lying between these points* will also coincide entirely. Let it be granted, in addition, that the parts which are *not* between these points will coincide (an equally evident proposition), and the 10th axiom of Euclid admits of proof. Euclid, in taking this axiom for granted, makes use of it to prove our additional assumption, which, as he phrases it, is, 'no two lines can have a common segment;' that is, two lines cannot coincide between two points and not coincide elsewhere. But, of two propositions, one of which it is found necessary to assume, that one should be the more simple of the two.

The 11th axiom, which is a theorem of some difficulty, neither self evident, nor even easily made evident, is not at all required in the form given, even in Euclid. For he proves, without its assistance, that if the two lines there mentioned meet, it must be on the side on which the angles are less than two right angles. But it may be reduced to a very evident form as follows. If a straight line be taken, and a point exterior to it, of all the straight lines which can be drawn through the point, one *only* will be parallel to the first mentioned straight line. The whole assumption lies in the word *only*, for Euclid shows, without the help of this axiom, that a parallel can be drawn, and how to draw it.

This axiom is the cause of the celebrated discussion on the theory of PARALLELS, under which head it will be more fully treated.

It appears, then, that geometry is established upon two results of observation, experiment or intuition, by whichever name it may be called, independently of axioms which are common to the whole science of quantity, and simple assertions of the possibility of certain notions laid down. These two propositions are:—

1. That two indefinitely extended straight lines, which coincide in two points, coincide altogether in every part.

2. All the straight lines which can be drawn through a given point, meet any other line in the same plane (with the exception of one *at most*) if produced far enough.

At the same time, many other tacit assumptions may be met with in Euclid which are not formally placed among the axioms. In the first proposition, for example, it is assumed that two circles, one of which is partly within and partly without the other, will meet in one point at least; in the fourth, it is assumed that change of place, without change of form, is possible. These would hardly be worth notice, had it not been that among the formal axioms we find 'the whole is greater than its part,' after which we have a right to conclude that no proposition, however evident, will be taken for granted without being distinctly and formally enumerated as an axiom.

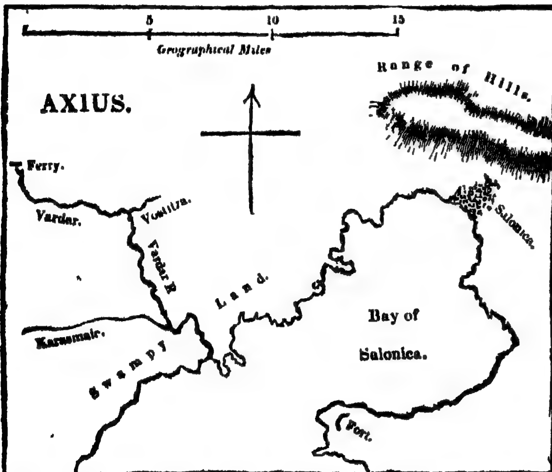
AXIS, AXE. This word is used in so many different senses, that it may be defined as follows: any line whatsoever which it is convenient to distinguish by a specific term with respect to any motion or other phenomenon, is called the axis. Thus we have axes of co-ordinates, of oscillation, of inertia, of rotation, of polarisation, &c., under which heads definitions will be given.

The word, when used by itself, generally means either axis of *Rotation*, or axis of *Symmetry*. An axis of rotation, or revolution, is the line about which a body turns; an axis of symmetry is a line on both sides of which the parts of the body are disposed in the same manner, so that to whatever distance it extends in one direction from the axis, it extends as far in the direction exactly opposite. Or if perpendiculars to the axis be drawn from all points and in all directions through the body, the whole of each perpendicular which is within the limits of the body will be bisected by the axis. Such is the middle line of a cone, any diameter of a sphere, the line drawn through the middle of the opposite faces of a cube, &c.

AXIS, a species of Indian deer. The word is also used generically to denote a small group or subgenus of solid-horned ruminants, presenting the same characters and inhabiting the same climate as the common axis. [See DEER.]

A'XIUS, in zoology, a genus of long-tailed decapod crustaceans, founded by Leach on *Axius stirhynchus*, which is about three inches, or three inches and a half in length, and rarely found on our coasts. It has been taken near Sidmouth and Plymouth. Desmarest, with much reason, considers this genus entirely artificial, and thinks that it ought not to be separated from *Callianassa*. [See CALLIANASSA.]

A'XIUS, a river of Macedonia, now called Vardar, which empties itself into the Gulf of Salonica near the western part of the bay. The alluvial depositions have encroached greatly on the gulf, leaving a low and swampy land, intersected with numerous small branches forming islets of high reeds, and rendering the principal branch difficult to discover. The entrance is very intricate, being much obstructed by shoals and sand-banks, but the river is navigable for the large country boats (from twenty-five to thirty tons) for several miles. It runs about N. by W. nearly a straight course for eight miles, when it is joined from the eastward by a small stream not navigable for boats (possibly the antient Echeidorus); then taking a more westerly direction, it becomes more tortuous. Four miles above the junction is a ferry on the road from Salonica to Thessaly, and about as many more higher up the river is crossed by a solid wooden bridge on the road to Pella. The depth of the river depends on the season of the year: during the summer there is not more than four feet under the bridge, but as the bottom is of soft sand, it is hazardous to ford. From this point downwards the river appears to have deviated from its antient bed, which may still be traced about six miles from Salonica to the west, and to have taken a more westerly direction; it is now joined, about a league from the sea, by the Kara Azmac (apparently the antient Lydias), flowing from the Lake of Pella. The nearest point of the river is now about fourteen miles west of the town of Salonica, whence there is a carriage road to Pella.



The Axius has its sources in the ranges between Scardus and Orbelus, about ninety miles in the interior; it is joined by several small streams, but passes no town of importance.

Herodotus (vii. 124) describes the Echeidorus as flowing through Mygdonia, and entering the gulf in or close to the marsh at the mouth of the Axius. In the age of the historian the Axius was the boundary between Mygdonia on the east, and Bottiæis on the west, along the shore of the gulf. The epitomizer of Strabo (book vii.) says that the Axius is a muddy stream: he also states that a branch or channel of the Axius runs into that lake in which Pella stands, and out of which the Lydias flows into the gulf. According to Herodotus (vii. 127) the Lydias and Haliacmon united before they reached the sea, but this does not appear to be the case at present. (See Cousinery's *Macedonia*.)

AXMINSTER, a market-town in the hundred of Axminster, county of Devon, on the road from London to Exeter, 147 miles W.S.W. of the former, and 26 miles E. of the latter. It is called Axeminstre in *Domesday Book*, and Axmyster in old writings. It is said that the name is owing to King Athelstan having given the church to seven priests who were to pray for the souls of certain earls and others slain in battle with the Danes, at or near Colecroft in this neighbourhood. The college was not however kept up after the death of the first members.

The town is on the left or S.E. bank of the river Ax or Axe, and is irregularly built on the side of a little hill rising from the river. The streets are sufficiently wide and airy, and the place altogether is clean and healthy. The church, which stands on the S.W. side of the town, is cumbrous and heavy in its appearance, particularly on the inside. There is a Norman door-way with enriched mouldings, three stone stalls of unequal height, and the monument of an ecclesiastic with a mutilated effigy. Besides the parish church, there are three places of worship belonging respectively to the Roman Catholics, Independents, and Methodists.

The chief manufacture of the place is carpets. In this it has rivalled the productions of Turkey and Persia so successfully, that the carpets of Axminster are considered little inferior to those imported. They are woven in one entire piece. Woollens, leather breeches and gloves, and tape, are also made. There is a market on Saturday; but the business done in corn has become inconsiderable. There are three (or, according to some authorities, four) fairs in the year, chiefly for cattle. The population of the parish (which is subdivided into four tithings, and contains 6590 acres, or above ten square miles) was 2719 in 1831.

The living is a vicarage, with the curacies of Kilmington and Membury appended to it, all in the rural deanery of Honiton, the archdeaconry of Exeter, and the diocese of Exeter. There is a school, in which twelve children of the parish of Axminster and two of the parish of Kilmington are educated gratis. The master is allowed to receive other scholars on his own account, and the whole are taught in a school-house built by the parish above forty years ago.

The manor of Axminster was, in early times, the property of the Crown. King John bestowed it on the Lord Brewer or Briwere. After some changes it came to the Cistertian Monastery at Newnham, some very scanty remains of which are still seen near the town; and upon the dissolution of the religious houses in the reign of Henry VIII., it fell again to the Crown. James I. granted it to Sir W. Petre, afterwards Lord Petre, in whose family it still remains. It is said there was formerly a castle at Axminster. In an action near this town, between the Royalists and Parliamentarians, in October, 1644, during the great civil war, Sir R. Cholmondeley, who commanded the former, was killed.

The Rev. Micaiah Towgood, an eminent Dissenting minister of Exeter, was a native of this parish.

(Polwhele's *History of Devonshire*; Lysons's *Magna Britannia*; Rickman's *Gothic Architecture*, &c.)

AXOLOTL (*Gyrinus*, Hernandez and Shaw), in Zoology, a singular genus of batrachian reptiles, belonging to the perennibranchiate family, or those which retain their gills throughout life, and distinguished from other genera of the same family by having four feet, furnished with four toes before and five behind. This very remarkable group, containing at present but four small genera—the *Axolotls*, the *Menobranchi*, the *Protei*, and the *Sirens*—comprises the only known animals which possess at the same time both lungs and gills, and which are consequently organized to live either on land or in water. These, therefore, are, strictly speaking, the only true *Amphibiæ* in nature; for though this term has often been employed in a very vague and indeterminate sense [see AMPHIBIA], yet the literal meaning of the word restricts it to the acceptation here given to it, and excludes not only the reptiles in general to which Linnæus applied it, but even the more ordinary

batrachians—the frogs, the toads, and the salamanders—which, though furnished with gills in their tadpole state, lose them as soon as the lungs are developed, and at no period of their lives possess this double organization simultaneously. The transitory union of these two great systems of respiration, as exhibited in the tadpoles of the common frogs and salamanders, had long been familiar to naturalists and physiologists; but their permanent and simultaneous existence was a fact much out of the way of common experience, so that it is not surprising that zoologists should have received it at first with doubt and hesitation, or that they should have considered the animals themselves as the young of unknown species, which, as in ordinary cases, would gradually lose the branchial apparatus as they approached to maturity. Repeated observations, however, and a long acquaintance with the natural form and habits of these very singular animals, at length dissipated all doubts upon this interesting question; and it is now a well-established and universally admitted fact, that certain reptiles not only possess both these respiratory systems at the same time, but even preserve them permanently throughout their entire lives, and can consequently breathe either air or water according to the circumstances in which they happen to be placed.

Among the animals thus circumstanced, the axolotl was certainly observed, and in a manner described, long before any other species. At the period of the Mexican conquest, the Spaniards found this animal in great abundance in the lake which surrounds the city of Mexico, to the inhabitants of which capital it then furnished, as it still continues to furnish to their successors, an agreeable and much-esteemed article of food. Hernandez, who seems to be the first writer who actually described the axolotl, expressly mentions its having been thus used by the ancient Mexicans, and adds, that the flesh was considered as an aphrodisiac, that it was wholesome and agreeable, and tasted not unlike eel. Succeeding authors, without taking the trouble of observing for themselves, were content to copy what Hernandez had said before, but distorting his short description by absurd comments of their own, and adding the figures of far different species, the whole subject became at length involved in such inextricable confusion, that finally all memory of the axolotl was lost, or the animal itself considered as a fictitious being. The late Dr. Shaw, however, who received a specimen of the animal direct from Mexico, recognized in it the axolotl of Hernandez, as is proved by his having used the generic term, *Gyrinus*, in his account of it published in the *Naturalist's Miscellany*, which had been originally applied to it by its first describer, though Baron Cuvier seems disposed to deprive the British naturalist of this credit, and to ascribe the sole honour of rediscovering the axolotl to Baron Humboldt. It is indeed true that Dr. Shaw subsequently described the same animal, in the third volume of his *General Zoology* under the very different name of *siren pisciformis*, but this only proves that he considered it, as Baron Cuvier was himself afterwards inclined to do, not as a perfect animal, not in fact as the type of a new genus, but rather as the immature state of some species belonging to a genus already known. To Baron Cuvier himself, however, we are indebted for the complete description and elucidation of the form and organic structure of this curious reptile. Two specimens, brought by M. Humboldt from Mexico, were submitted to the examination of the French naturalist, whose researches on the subject of their anatomy, compared with that of the kindred genera, are recorded in his *Recherches sur les Reptiles Douteux*, inserted in the zoological part of MM. Humboldt and Bonpland's Travels. A detailed examination of all the batrachian reptiles, and more particularly a careful investigation into their anatomical structure during the tadpole stage, and the gradual change which they undergo in passing from this state to their mature and perfect form, led Baron Cuvier to establish as an unquestionable fact, that certain of these animals retain both lungs and gills throughout the entire period of their existence: but whilst he unhesitatingly announced this fact with regard to the *siren* and *proteus*, he was disposed to consider the *axolotl* as the tadpole of some of the larger species of American salamanders, an error induced as well by the general similarity which these animals bear to one another, as by the immature age of the specimens of the axolotl which were submitted to his observation. Succeeding naturalists adopted M. Cuvier's views upon this subject; but that great zoologist himself subsequently altered his original opinion, and candidly confesses in the second edition of the *Règne Animal*, that the concurrent testimony of all original observers overbalances the mere deductions of the physiologist, however plausible or apparently well founded. He has accordingly admitted the claim of the axolotl to rank as a new genus in the *Systema Naturæ*, but as he has not provided it with a proper generic name, it is but justice to Hernandez and Dr. Shaw to retain that of *gyrinus*, by which it was originally distinguished and described, and which, though perhaps not exactly intended by either of these authors to be taken in the strict acceptation of a modern generic appellation, may nevertheless, and particularly in the present advanced state of the science, be considered in this technical sense with considerable advantage to zoology.

The generic characters of the genus *gyrinus* then, in addition to those already reported, consist in having the gills formed of three long ramified or branch-like processes on each side of the neck, four toes on the anterior extremities, and five on the posterior, and teeth in the vomer, as well as in both jaws. The tail is compressed on the sides like that of the common water-newt (*salamandra palmata*), and surrounded both on the upper and under surfaces by a thin, erect membranous fin, which is prolonged upon the back, but becomes gradually narrower as it approaches the shoulders, between which it finally ceases. The head is broad and flat, the nose blunt, the eyes situated near the muzzle, the tail nearly as long as the body, and the toes unconnected by intermediate membranes. The singular form of the gills will be best understood from the accompanying figure, which represents the under jaw and throat of the animal as seen from beneath. One species only is known at present—



[Axolotl. Gyrinus edulis.]

The *Axolotl* of the Mexicans (*Gyrinus Edulis*, Hernandez), when full grown, measures about eight or nine inches in length; its ground colour is a uniform deep brown, thickly mottled both on the upper and under surfaces of the head and body, as well as on the limbs, tail, and dorsal and caudal fins, with numerous small, round, black spots. The head and body are larger and broader than in the generality of reptiles, and but for the long tail which terminates the latter, the whole animal might be not inaptly compared in form to a large frog; the gills are prolonged into three principal processes, with numerous smaller ramifications from the sides of each, the whole being as long as the fore legs, and resembling three small branches; the legs are short though fully developed, and the toes are long, slender, separate, and without claws. The communications which open from the gills into the mouth are four in number, and of a size considerably larger than those of the kindred

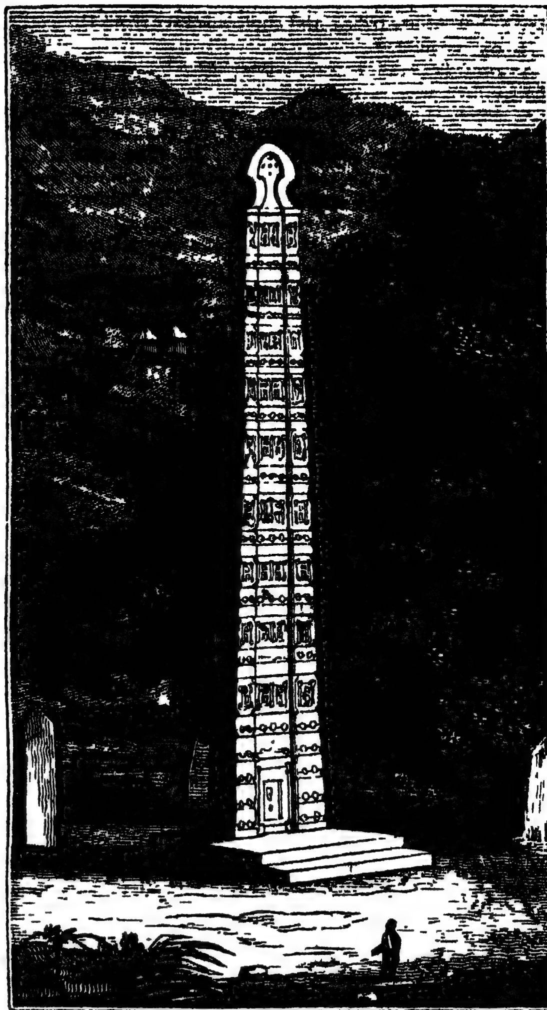
genera; they are covered externally by a species of operculum formed by a fold in the skin of the head.

Such is a description of the only species of this singular genus which has been hitherto distinctly characterised. M. de Beauvois has, indeed, described an animal under the name of *Siren Operculata*, which, if not the Axolotl of Mexico itself, appears to be at least a very closely-allied species, but we do not possess data upon the subject to warrant us in considering it, even temporarily, as a second species of the present genus. Still it is highly probable that further researches will furnish the means of distinguishing other kindred species, and travellers and observers who have the opportunity could not employ themselves more agreeably than in pursuing this curious and interesting inquiry. The Axolotl is very common in the lake of Mexico, and, according to Baron Humboldt, likewise inhabits the cold waters of mountain lakes at much greater elevation above the level of the sea than the plains surrounding that city. It is commonly sold in the markets of Mexico, and esteemed a luxury by the inhabitants; it is dressed after the manner of stewed eels, and served up with a rich and stimulating sauce.

AXUM, a town of Abyssinia, in about 14° 7′ N. lat., and about 120 miles from Arkeeko, on the coast of the Red Sea. The most recent published account that we have of this place is from Mr. Salt, the late British consul in Egypt: that of Rüppell, a German traveller in Abyssinia, is not yet published. The town stands 'partly in and partly at the mouth of a nook formed by two hills on the N.W. end of an extensive and fertile valley, which is watered by a small stream.' One of the objects that first strikes a traveller is a small plain obelisk, with the remains of many others lying near it; but the great curiosity is the large obelisk, sixty feet high, made of a single block of granite. It stands near a large Daroo, or fig sycamore, as it is represented in Plate XX. of the folio coloured engravings that accompany Salt's work. This obelisk has no hieroglyphics upon it like those of Egypt, nor does it exactly agree with them in shape. Though it is quadrilateral, one of the sides has a hollow space running up the centre from the base to the summit, which, instead of terminating in a pyramid like the regular obelisks, is crowned with a kind of patera. At the bottom of the hollow space just described, a doorway is represented. The reader may form a better idea of this from Mr. Salt's beautiful drawing, or, in the absence of that, from our reduced copy of it. The obelisks of Axum were originally fifty-five in number, and four of them, it is said, were as large as that now standing; yet nothing is known of the period at which they were erected, though we can hardly doubt that they belong to a period not earlier than the Christian æra. Among the other antiquities of Axum is a stone which contains two inscriptions: that on one side is in rude Greek characters, and has been copied by Mr. Salt; that on the opposite side, of which Mr. Salt could only copy a small part, he believes to be in Ethiopian characters, and also conjectures, with great probability, that it was cut at the same time with the Greek inscription.

Besides the obelisk, there is a Christian church at Axum, to which there is an ascent by two fine flights of steps. The church itself, which is not two centuries old, is 111 feet long, 51 broad, and 40 high, with a flat roof, and no great beauty in its architecture. Another remnant of former times, near the church at Axum, is a square enclosure, with a pillar at each corner; within it are a seat and a footstool; the whole is of granite. On this seat, tradition says, the antient kings were crowned. Bruce (vol. iv. p. 323) gives from this stone, which he calls a freestone, an inscription of three Greek words, which, he says, 'though much defaced, may safely be restored.' As restored by him, they signify 'King Ptolemy Euergetes;' but Mr. Salt, and his fellow-travellers Mr. Smith and Stuart, assert that there is no inscription at all on the footstool, while there is an *Ethiopian* inscription on another granite stone, resembling a footstool, thirty yards from the genuine footstool. Mr. Bruce's account therefore is probably not true; at least it is certain that he did not see the large Greek inscription, though the Jesuits had observed it long before him. (See Tellez, *History of Ethiopia*, i. cap. 22.)

The kingdom of the Axumites is first noticed by the author of the *Periplus* (or Coast Survey) of the Red Sea and part of the east coast of Africa, &c. This document, which is still extant was written probably about the close of the second century; but how long this Axumite empire had existed before, we are not able to say. The Greek inscription, which was copied by Mr. Salt, shows us that the monarch of Axum had an extensive empire; in Africa, it was co-extensive at least with the present province of Tigré, and his possessions extended even into Arabia. Through the port of Adule on the Red Sea, Axum maintained a commercial intercourse with Arabia and India; and it was probably for some advantage to be secured to Greek merchants from Egypt in the Indian trade, that the Byzantine Cæsars paid a yearly tax to the Axumite king until the commencement of the Arab conquest. Axum was the great emporium for ivory, which was exported through Adule. (*Periplus*; Hudson's *Minor Greek Geographers*.) It may be mentioned as a curious fact, that when the Emperor Aurelian took Palmyra in the Syrian desert, he found among the assemblage of nations within its walls some Axumites, probably traders. The Byzantine writers, such as Procopius, Cedrenus, &c., call both the Axumites and the Homerites (Himyarides) of Arabia *Indians*, while they carefully restrict the term Ethiopians to the Axumites. It appears, then, that for a certain period, at least for several centuries after the Christian æra, the vague term Ethiopians was used in a *limited* sense, and applied to a people who inhabited one of the large districts now forming a part of the modern Abyssinia. We may conjecture, but we cannot in the absence of all evidence affirm, how the Greek language got to Axum, and how it came to be adopted by the native kings. The most probable hypothesis would be, that as the Greeks gradually got a footing in Egypt, and finally, after the time of Alexander, became masters of the country, so this restless people spread even into Ethiopia, where some bold adventurers, partly by conquest, partly perhaps in other ways too, became the ruling caste, and formed a dynasty of half Greek sovereigns, whose resemblance to their own nation would gradually fade away, on account of their proxi-



[Obelisk of Axum.]

mity to barbarous tribes, and their distance from the centres of Greek civilization.

Axum was probably the first part of Abyssinia into which Christianity was introduced. In the *Apology* of Athanasius, which is addressed to the Emperor Constantius Nicetes, the patriarch gives a copy of a letter sent by Constantius to Axum ('Αξουμις) on the subject of Frumentius. This letter is addressed jointly to two persons, named Aizanas and Sazanas, without any indication of one being superior to the other; but they are evidently addressed as the sovereigns of Axum. From this letter it appears that Frumentius had been appointed Bishop of Axum by Athanasius. The emperor intimates that the imperial decree is as valid in the Alexandrine as in the Roman church, and he accordingly orders the brothers to send back Frumentius to Egypt, in order that his appointment and qualifications might be examined by Gregory, who then held the see of Alexandria, in place of Athanasius who had been ejected, and by the other bishops of Egypt. [See ATHANASIUS.] In conclusion, the emperor addresses the two Axumite princes by the title of 'most honoured brethren' (ἀδελφοὶ τιμιώτατοι). See the works of St. Athanasius, by the Benedictines of St. Maur, vol. i. pt. 1. p. 315.

It is a singular coincidence that the Greek inscription copied by Mr. Salt records the name and exploits of Æizanas, King of the Axumites, Homerites, &c.; and that Saizanas is also mentioned in the same inscription as one of his brothers, who, with Adephas, another brother, was sent against the revolted Bougæitæ—the modern Beja. Adephas is not mentioned in the letter of Constantius. The inscription commemorates the success of the expedition and the clemency of the victorious sovereign, who styles himself the son of Ares (Mars). There can be no doubt, then, that this inscription belongs to the same epoch as the letter of Constantius. Athanasius was driven from his see about B.C. 356, and the letter of Constantius must have been written soon after It is a reasonable inference from this letter that Constantius considered the two Axumite princes as Christians; but from the inscription, which appears to refer to the same personages, it is clear that when this monument was erected, the sovereign was a heathen; and yet the conversion of the Abyssinians to Christianity took place at least as early as A.D. 330. The difficulty may be solved by supposing that the monument was raised before the mission of Frumentius; or perhaps better by supposing that the heathen forms continued to be used on public occasions even after the introduction of Christianity.

Another sovereign of Axum, called Elesbaan, is mentioned by Cosmas, a Greek writer of the sixth century of the Christian æra. A comparison of the inscription of Adule, as reported by Cosmas [see ADULE], shows that the inscriptions of Axum and Adule refer to the same dynasty, and that the inscription of Axum is posterior to that of Adule. In both inscriptions the king calls himself the son of Ares, who seems to have been the guardian god of the family In the Adule inscription the king declares he was the first conqueror of several of those nations, of which the king mentioned in the Axum inscription simply calls himself sovereign. It appears from these inscriptions that the Axumite dominion extended into Arabia, and comprised the Himyarides, called by the Greeks, Homeritæ. [See ARABIA, p. 215, &c.] Dr. Alexander Murray, in one of his letters to Salt (see Hall's *Life of Salt*), supposes the monument of Adule to be nearly of the age or century of Cosmas himself; and he founds this opinion on the identity, which he assumes, between the Axumite king Elesbaan, the contemporary of Cosmas, and El Atsbeha or Caleb. But the premises, even if correct, lead to no such conclusion. As far as the internal evidence of the two inscriptions goes, that of Adule is undoubtedly the older; how far they are reconcileable with the list of Axumite kings is another question.

Mr. Bruce brought from Abyssinia a copy of the *Abyssinian Chronicles, or the Book of Axum;* but this work has not yet been translated. It is worthy of remark that the Arabic article Al or El, *The*, stands before the names of several sovereigns in the antient list, though it is long since obsolete in the Geez.' (Dr. Murray.) The chronology of these Axumite kings is doubtful and much disputed.

(See Bruce's *Travels*, Salt's *Voyage to Abyssinia*, &c.)

AYACU'CHO, the name of a plain in Peru, in South America, in the district of Guamanga. It is bounded on the east by the abrupt ridge of Condorcanqui, or Condorkanki; on the west, after a gradual descent of about six miles, it abuts upon the main road from Guamanga to Lima; and it is bounded north and south by deep ravines. Its form is almost a square, about four miles in circuit. This plain was the scene of a desperate conflict between the Spaniards and the independent Americans in December, 1824. This battle was the result of nearly three months' skilful manœuvring on both sides; of a succession of marches and counter-marches, during which several skirmishes took place, the American troops always retiring, and the Spaniards endeavouring to outflank them. The royalist army, overcome with fatigue after so long and fruitless manœuvring, were in such a state of discontent, that the viceroy always halted by columns, and placed a circle of sentinels, of the most trusty men he had, round his camp to prevent desertion. For the same reason he would not allow his soldiers to go in search of provisions, and his army suffered so much from want, that they were obliged to subsist on the horses and mules. Both officers and soldiers murmured at the conduct of their chiefs, and ardently wished to join battle with the enemy. At Guamanguilla, shortly before the battle, placards appeared pasted on the tents of the viceroy Laserna, and of Canterac, who was second in command, accusing them of cowardice. On the other hand, the Americans were reduced to such extremities, that only a desperate effort could save them from complete ruin. Bolivar was at Lima, and Sucre had the command of the independent army. On the afternoon of the 8th of December the Spanish army occupied the heights of Condorkanki, and were within cannon-shot of the independents. The latter occupied the opposite extremity of the plain, having on their rear the small village of Quinua. During the night a sharp fire was maintained between the outposts on both sides. On the morning of the following day, the Spanish army, consisting of 7200 infantry, 1300 horse, and a respectable artillery, was posted a little below the summit of Condorkanki. General Valdez commanded the right wing, Villalobos the left wing, and Canterac the centre. The patriot army consisted of 5627 men, including 1000 horse. The right wing was commanded by General Cordoba, the left by La Mar, and the centre by Lara. At nine in the morning Villalobos began to descend with his division down the ridge in an oblique direction, and as the files reached the plain they formed themselves into column. The viceroy Laserna was on foot at the head of this division.

At this moment Sucre rode along the front of his army, and addressed a few emphatic words to the men, which were answered by enthusiastic huzzas from all. He then ordered General Cordoba to advance with his division and two regiments of cavalry. The gallant Cordoba, placing himself in front of his division, dismounted from his horse, and plunging his sword into its heart, said, 'There lies my last horse. I have now no means of escape; we must fight it out together;' then waving his hat over his head, cried, 'Onwards, with the step of conquerors.' These words produced a powerful effect on his men; and the independents charged the enemy with the bayonet. The royalists resisted the charge with firmness and apparent confidence. For three or four minutes both parties struggled together, so as to leave the victory doubtful. At this moment Colonel Silva charged with the independent Columbian cavalry; and though he fell covered with wounds, so intrepid was the attack of the Columbians, that the royalists began to give way, and were at last driven back with great slaughter. The viceroy himself was wounded and taken prisoner. The independents then extended their line, and directed a deadly fire upon the retiring enemy, many of whom were seen to drop down as they attempted to climb the heights. At this critical point, Colonel Miller, of the independent army, placing himself at the head of the hussars of Junin, advanced, and completed the success.

Early in the morning Valdez had marched his division down the north side of the mountain, and making a detour of nearly three miles, had placed himself on the left of the independents, within musket shot. He was separated from them by a deep ravine, and just at this critical time in the engagement, he opened so heavy a fire of artillery and musketry upon the division of La Mar, that he forced it to fall back. A Columbian battalion was now sent to support La Mar, but was also forced to give way. Two royalist battalions now crossed the ravine, and began to pursue the retiring patriots. At this moment Colonel Miller made a successful charge with his hussars on the hitherto victorious

Spaniards under Valdes, drove them back, and followed them across the ravine. The division of La Mar rallied, and, supported by the mounted grenadiers, also crossed the ravine. Colonel Plaza, of the independent army, did the same with his legion on the left, and Lieutenant-Colonel Moran at the head of the battalion Bargas on the right. These two battalions, supported by the cavalry, made their repeated charges so successfully, that Valdez was defeated, and his four field-pieces taken. The Spaniards now began to rally the remains of their army on the heights, and the divisions of La Mar and Lara gained the summits at about 1 P.M.; but at sunset the royalists sued for terms. Canterac rode down to the tent of Sucre, and a capitulation was agreed upon, by which the viceroy, 15 general officers, 16 colonels, 484 officers, and 3200 men became prisoners of war. The whole of the territory hitherto possessed by Spain in Peru, with the exception of Callao, was also surrendered to the independents. The royalists had 1400 men killed and 700 wounded. The loss on the part of the Americans was 370 killed and 609 wounded.

(See *Memoirs of* General Miller, vol. ii. ch. xxiv. xxv.; *Annual Register; American Annual Register.*)

AYAMONTE, a city in Spain, in the kingdom of Seville, 37° 12′ N. lat. 7° 10′ W. long. It is situated on the slope of a lofty hill, at the place where the river Guadiana enters the ocean. It is a fortified town opposite to Castromarin, in Portugal, the capital of the district which bears its name, and comprises thirty villages. There are in Ayamonte two parishes, five hermitages, two convents of monks, one of nuns, a foundling hospital, and an alms-house. Its population is 6347, three-fourths of which number are fishermen, sailors, and ship-carpenters, and the remaining part are employed in agriculture and commerce. The women make fishing-nets and lace, which latter article is much esteemed in South America. There are some soap manufactories, a few brick and lime-kilns, and some of common earthenware. In the neighbourhood of Ayamonte there are forests of fir-trees, which are employed in the building of ships. The territory is not very fertile. It produces on an average eight bushels of corn for one. The castle is of very old construction. The place was conquered by the Moorish king of Granada in 1406. The infante of Antequera wrested it from the hands of the Infidels two years after (1408). See ANTEQUERA. (Miñano's *Diccionario*, vols. i. and xi.; and Mariana, lib. ix. c. 16.)

AYEEN AKBERY, properly ÂYÎN-I-AKBARI, is the title of a geographical and statistical account of the Mogol empire in India during the reign of the emperor Jelâleddin Mohammed Akbar [see AKBAR], written by his vizir Abu'l Fazl. [See ABUL FAZL.] It constitutes properly the third or concluding part of the *Akbarnameh* of the same author: the first volume of this work consists of a summary account of Akbar's ancestors, and the second volume comprises the occurrences of his reign, from his accession to the throne down to the 47th year. A free and often abridged translation of this work into English was undertaken by Mr. Francis Gladwin, and began to be published at Calcutta, in 1783. It has twice been reprinted in England. As an original, and we may say an official account of the internal organization of the Mogol empire at the time of its greatest prosperity, the Ayîn-i-Akbari is highly interesting. It is divided into four parts: the first three are chiefly political and legislative, containing the regulations of the different household, military, and revenue offices, and showing the manner in which these several departments are managed; the fourth part is chiefly statistical and geographical, giving a description of the several provinces at that time comprehended under the Mogol government, and a detailed account of the antient institutions, religion, and literature of the Hindus, which is very comprehensive, and in many parts surprisingly accurate. The whole work is interspersed with a number of tables, many of which are very instructive, and it abounds in notices of general interest and of great utility for the history and geography of Asia. Among them we shall here only mention the comparative account of the principal eras used in computing time by different nations of Asia, and a long list of geographical names, arranged according to the Oriental plan of the seven climates, and stating the longitude (from the Happy Islands) and latitude of each.

AYLESBURY, a considerable town in Buckinghamshire, on the road from London to Warwick and Birmingham, thirty-eight miles from London, through Watford, Berkhampstead and Tring, and forty and a half through Uxbridge, Amersham, and Wendover.

This town is situated near the centre of the county, on a small elevation in the midst of the fertile vale of Aylesbury. It is close to a small rivulet which comes from the neighbourhood of Wendover, and which, after passing Aylesbury, falls into the Thame about two miles north-west of the town. It consists of several streets and lanes irregularly built. The elevation of the town above the general level of the vale caused the want of water to be frequently felt by the inhabitants; but the houses are now well supplied by means of machinery in the gaol, which is worked by the prisoners. The town is also well paved, and lighted with gas.

Although Aylesbury does not give name to the county, it seems to have the fairest title to be considered as the county town. The quarter-sessions are always held here. Lord Chief Justice Baldwin caused the removal of the assizes to this town in the reign of Henry VIII., but in 1758 Lord Cobham procured an act of parliament for holding the summer assizes at Buckingham; the Lent assizes are however still held at Aylesbury, where also is the county gaol. It is the place where the county members are nominated and where the return is announced.

The county hall is a handsome brick building, erected in the earlier part of the last century. The old town-hall and market-house, built at the expense of Lord Chief Justice Baldwin already mentioned, have been lately replaced by a building on the model of the Temple of the Winds at Athens. The parish church, dedicated to St. Mary, is a spacious antient structure, in the shape of a cross, with a low tower rising from the intersection of the nave and transepts. This tower, from its elevated situation, is seen for many miles in every direction. The church contains little that is remarkable. There is a monument of Sir Henry Lee's lady, who died in 1584, and a marble effigy dug up some years since in the ruins of the church of the Grey Friars, supposed by Browne Willis to be that of Sir Henry Lee, who died in 1460. The pulpit is ornamented with some curious carved work. The churchyard is very large, and has several walks planted with double rows of trees. There are meeting-houses for Independents (formerly for Presbyterians), Baptists, Quakers, and Methodists.

There is a school, the origin of which does not appear to be clearly known. It was endowed with some tenements by Sir Henry Lee, of Ditchley, in Oxfordshire, before the year 1687; but the principal endowment is a bequest of 5000*l.* left by Mr. Henry Phillips of London, in 1714, and invested in the purchase of land, which, with the other resources of the school, produces an income of nearly 540*l.* The school buildings are adjacent to the churchyard, and consist of two houses, one for the head or Latin master, and the other for the writing or English master, with a school-room connecting the two. In this school-room 100 boys are taught by the English master, while twenty more are instructed by the head master in the different branches of a classical and mathematical education, in a building adjoining and belonging to the church, supposed to have been originally a chantry chapel. There is a charity, denominated, from the name of the founder, Bedford's charity, deriving a yearly income of about 535*l.* from houses and lands, which income is employed in repairing the roads in and about the town, or distributed in money and clothing to the poor. There are five large cottages near the church gate, occupied as alms-houses, bequeathed by a person of the name of Hickman, in 1695, together with some other property, the net proceeds of which (about 60*l.* per annum) are distributed in alms to the poor. There is also a considerable property left by William Harding of Walton, in 1719, for the purpose of apprenticing poor children. An apprentice fee of 20*l.* is given with each child, and fourteen boys and girls are on an average bound yearly. There are many minor charities. (*Report of Commissioners of Charities*, January, 1833.)

The only manufacture carried on in the town is of lace. There is a market on Saturday, principally for corn, and six fairs in the year, chiefly for the sale of cattle. A market once held on Wednesday has been disused.

Aylesbury was made a corporate town and a parliamentary borough by charter of Queen Mary, in 1554. The corporation consisted of a bailiff, ten aldermen, and twelve capital burgesses; but the powers of the charter expired (so far as

the corporation was concerned) in a few years after it was granted, in consequence of neglect in filling up the vacancies caused by death; and the right of voting for the members of parliament, which had been at first in the corporation, passed to the inhabitants paying scot and lot. In the early part of the last century occurred the case of Ashby and White, which brought on a serious difference between the two houses of parliament. Ashby claimed to be a voter of Aylesbury, and brought an action at law against White and others, the returning officers, for refusing his vote. He obtained a verdict; but the Court of Queen's Bench, before which the case was subsequently brought, gave judgment in favour of the defendants. A writ of error was brought into the House of Lords, who reversed the judgment of the Court of Queen's Bench. The House of Commons claimed the sole jurisdiction in all matters relating to the right of electing their own members; and on the 25th January, 1703-4, passed some strong resolutions on the subject, declaring Ashby guilty of a breach of privilege. An attempt on the part of Ashby to follow up the proceedings, and the institution of new legal proceedings against White and his brother officers by other parties, roused the spirit of the Commons, who committed the parties to the new proceedings to Newgate, and their attorney to the custody of the serjeant at arms The prisoners moved for an habeas corpus in the Court of Queen's Bench, but being remanded by that court, they petitioned the queen for a writ of error to bring the last proceeding into the House of Lords. The Commons ordered the persons professionally engaged in these legal measures to be taken into custody, and some of them were taken, but the Lords granted them a protection, and passed resolutions declaring that neither house of parliament could create to themselves any new privilege, not warranted by the known laws and customs of parliament—that every freeman might seek redress for supposed injuries in a court of law—that the Commons in committing the persons who instituted the new proceedings had created a new privilege, and had, 'as far as in them lay, subjected the rights of Englishmen, and the freedom of their persons, to the arbitrary votes of the House of Commons They also condemned that House for censuring or punishing the professional men, and declared a writ of error to be 'not a writ of grace, but of right' The Houses had several conferences, fresh committals to the custody of the serjeant at-arms were ordered, and resolutions passed by the Commons, directing that officer not to make any return of or yield any obedience to the writs of Habeas Corpus on behalf of some of the persons previously in custody, assuring him of the protection of the House Ultimately proceedings were stopped by the prorogation of Parliament Since this time actions have been frequently brought against returning-officers, and verdicts obtained: so that the Commons were in effect defeated

The parliamentary history of Aylesbury presents another remarkable incident. In 1804, in consequence of the corruption of the scot and lot voters, the right of voting was extended to the freeholders of 'the Three Hundreds of Aylesbury,' conjointly with the inhabitants of the town not receiving alms. (Oldfield's *Representative History of Great Britain*)

The parish of Aylesbury includes the hamlet of Walton, where was formerly a chapel The rectory forms the endowment of a prebend in the cathedral of Lincoln, within which diocese Aylesbury lies, and in the archdeaconry of Buckingham: the vicarage is in the gift of the prebendary The population of the parish was in 1831 about 5000, and the area was 3200 acres Many of the inhabitants of the neighbourhood derive support from their skill in breeding and rearing ducks, though the method pursued is by no means creditable to their humanity. They send a considerable number of ducklings to the metropolis about Christmas.

Aylesbury is a very antient town, and is said to have been one of the strongest garrisons of the Britons in their struggle against the Saxons, who took it in 571 · from which time its name does not appear in history, till the great civil war in the time of Charles I., when it was garrisoned for the parliament during the years 1644, 1645. The British name is lost. The Saxons called it Aeglesburge (Aeglesburge). In *Doomsday Book*, it appears under the name of Elesberie. In Leland, it is written Alesbury; and in Camden, Ailesbury; which last mode of spelling is retained in the title of Marquis of Ailesbury, which the family of Brudenell Bruce takes from this town.

There was a house of Grey Friars at the south end of the town, founded by James Earl of Ormond in 1387, but it was very poor; the revenue, at the general suppression of religious houses under Henry VIII, being valued only at 3*l*. 2*s*. 5*d* per annum. It became the seat of Sir J. Baldwin, Lord Chief Justice of the Common Pleas, to whom Henry VIII. granted it, and afterwards of the Packington family; but it was so much damaged in the great civil war, that it was never afterwards inhabited by them.

The vale of Aylesbury extends on the S.W. to Thame. The other boundaries, except on the south side, are rather difficult to ascertain. Leland makes the vale extend 'otherways to Buckingham, to Stonye Stratford, to Newport Painell, and alonge from Alesbury by the Rootes of Chiltern Hilles almost to Dunstable.' The Chiltern Hills bound the vale on the south side, and run in a direction E N E. and W S.W, nearly across the country. They are formed of chalk. The vale is better calculated for grazing land than almost any in the kingdom; but when the agricultural report of this county was drawn up (in 1794), the method of farming seems to have been little creditable to the skill and attention of the agriculturists. Grazing and dairy farming seem to be at present the chief objects of attention. Camden (in the beginning of the seventeenth century) says, 'round about (the town of Aylesbury) on every side are numerous flocks of sheep, loaded with wool, and yielding great profit to their owners' (Lysons's *Magna Britannia*; *Beauties of England and Wales*)

AYLESFORD, a village in Kent, on the right bank of the Medway, a little to the left of the road from London to Maidstone, thirty two miles and a half from the former, and about three miles and a half from the latter. The village consists only of one street. The church, a handsome building, with a square tower at the west end, is situated on an eminence at the back of the village. It contains a costly monument of Sir John Banks, bart., who died 1699. The ground rises so abruptly, that the churchyard is higher than the chimneys of the houses in the street. There is a stone bridge of six arches over the Medway; and in Aylesford street is a building erected for an alms-house, and endowed by the will of John Sedley, in 1605, for a warden and six poor persons; but the greater part of the property has been perverted to private use, though now, by means of the commissioners for inquiring concerning charities, it is likely to be recovered, and the charity re-established. Aylesford has one fair in the year, on the 29th of June. The parish extends on both sides of the river: it contains 3330 acres, and had in 1831 a population of 1301 persons. It includes the hamlet of Millhale, on the left bank of the Medway, and in the civil jurisdiction of the Corporation of Maidstone.

The living is a vicarage in the gift of the Dean and Chapter of Rochester. It is in the diocese and archdeaconry of Rochester. The church was granted by Henry I. to the bishops of Rochester. One of these gave it to the priory of that city; but by one of his successors it was, towards the close of the twelfth century, transferred to the newly-founded hospital at Stroud. The monks of Rochester priory appealed to the Pope; and after many years contest, and many decrees and confirmations in favour of each party, it remained with the hospital, the master of that institution appointing a vicar to celebrate divine service. Just before the dissolution of the religious houses, the master and brethren of the hospital resigned their hospital and all its possessions to the prior and convent of Rochester; and when, by the dissolution, the possessions of the priory came into the hands of the king, he granted the advowson of the vicarage to the Dean and Chapter of Rochester, in which it is still vested.

An endowment of 20*l* per annum for a charity-school was bequeathed by a Dr. Charles Milner, of Preston Hall, in this parish, who died in 1771.

Close to the Medway, a small distance west of the village, was a Carmelite friary, founded A D. 1240, by, or under the patronage of, Lord Grey of Codner. At the suppression of monasteries, the site, precinct, and lands of this were granted to Sir Thomas Wyatt, and on the rebellion of his son in the reign of Queen Mary were forfeited to the crown. Queen Elizabeth granted them to the Sedley family, and they are now in the possession of the family of Finch, Earls of Aylesford. In the mansion of this family, and in the domestic offices, many portions of the friary buildings are still

visible. We take the following description from Hasted's *History of Kent*.

'The greatest part of the antient priory remains very fair, and by far the least demolished of any conventual edifice in these parts. The great gate from the road is yet entire. It opens to a large square court, in which are seen all the door-ways to the cells. The side where the high buttresses are left, on the left hand within the gate, was the great hall or refectory, now divided into rooms. The kitchen was likewise on the east side of the square, as appears by the large fire-places in one part of it. The chapel was that part of the building which stands east and west; the north side of it fronts the garden as the south does the river; the east window of it was where now is the dining-room or gallery-door with the iron balcony facing the town. The principal part of this priory, as the hall, chapel, cloisters, &c., was converted into stately apartments by Sir John Banks (who resided here in the latter part of the seventeenth century), and the cloisters were by him inclosed and paved with white and black marble. There is a fair high stone wall which fronts the road and incloses the garden, the same as when in its antient state.'—(Vol. iv. 2d ed. 1798.)

There are in the parish the ruins of the antient free chapel of Longsole, now used as a barn, and called, from its lonely situation, 'The Hermitage.' It is about two miles from the town, on the other side of the Medway. On the window-frame of a large antient barn (belonging to Preston Hall in this parish), built of stone, as well as on an out-house near it, also of stone, and on a chimney-piece, are the letters T C with the date 1102 in Arabic figures. The use of these at so early a period has given rise to much discussion among antiquaries: the inscription is probably of a much later date, and refers not to the date of the erection of the building.

But the most remarkable monument of antiquity is that called Kit's Coty House, situated on the brow of a hill, about a mile N.E. of the village. It is composed of four large stones, of the stone called Kentish rag, according to Grose; while Hasted vaguely describes them as being 'of the pebble kind.' The following description of this monument is given by Stow in his *Chronicle*, and quoted by Mr. Colebrooke in the *Archæologia*, vol. ii. p. 115 (pub. 1773):—'I have myself, in company with divers worshipful and learned gentlemen, beheld it, in anno 1590, and is of four flat stones, one of them standing upright in the middle of two others, inclosing the edge sides of the first, and the fourth laid flat aloft the other three, and is of such height that men may stand on either side the middle stone in time of storm or tempest safe from wind and rain, being defended with the breadth of the stones, having one at their backs, one on either side, and the fourth over their heads; and about a coit's cast from this monument lieth another great stone, much part thereof in the ground, as fallen down where the same had been affixed.' 'This last stone,' says Mr. Colebrooke, 'lies about seventy paces to the N.W. in the same field. The thickness is half buried; but from its present position, it seems as if it had once stood upright.' It has since been buried 'for the convenience of agriculture.' It may be observed, that the openings formed by the stones of Kit's Coty House are not of equal dimensions, but the larger one fronts between E. and N.E., whence some writers (as Grose) describe them as forming three sides of a square. The upper stone is not quite parallel to the horizon, but inclines towards the W. or S.W. opening, in an angle of about nine degrees. The dimensions of the stones are as follows. We take them from Grose's *Antiquities*.

Upright stone on the N. or N.W. side, eight feet high, eight feet broad,* two feet thick: estimated weight, eight and a half tons.

Upright stone on the S. or S.E. side, eight feet high, seven and a half feet broad, two feet thick. estimated weight, eight tons.

Upright stone between these, very irregular, medium dimensions, five feet high, five feet broad, fourteen inches thick: estimated weight, about two tons.

Upper stone, very irregular, eleven feet long, eight feet broad, two feet thick: estimated weight, about ten tons, seven cwts.

None of the stones have any marks of workmanship.



[Kit's Coty House.]

At the distance of two fields southward from Kit's Coty House, in the bottom nearer to Aylesford, is a heap of the like kind of stones, some of which are partly upright, and others lying in a circle round them, in all to the number of nine or ten. Those that are partly upright, with a large one lying across them, appear to have once formed a kind of structure like that of Kit's Coty House, and to have had the same aspect: the whole heap is now intergrown with elms and other coppice shrubs. This monument of antiquity is supposed to have been demolished by some persons digging a trench beneath it, in hope of finding treasure. (Hasted's *History of Kent*.) Still nearer to Aylesford is a remarkable stone, called, from its shape, the Coffin.

Respecting the origin of Kit's Coty House, as well as of its singular name, different opinions are entertained. It appears that about A.D. 455, soon after the arrival of the Saxons in England, under Hengist and Horsa, when hostilities broke out between them and the Britons, a battle took place at Aylesford, one of the three which are thought to have compelled the Saxons to leave the island for a time. (Turner's *History of the Anglo-Saxons*, book iii. c. 1.) In this battle, Catigern, brother of Guortemir, or Vortimer, the British commander, fell, as also Horsa, one of the Saxon chieftains. It is commonly supposed that this is the monument of Catigern; and the name, Kit's Coty House, is considered by Stow, Camden, Grose, and others, to be derived from the name of that person. Grose has this passage: 'Perhaps the appellation of Ket's Coity House' (so he writes it) 'may be thus illustrated: Ket or Cat is possibly the familiar abbreviation of Catigern; and in Cornwall, where there are many of these monuments, those stones, whose length and breadth greatly exceed their thickness, are called coits: Kit's Coity House may then express Catigern's House built with coits, and might have been a taunting reflection on the memory of that champion for the British liberty, used by the Saxons when in possession of the county of Kent.' Mr. Colebrooke inclines to think it is the sepulchral monument of Horsa, which is commonly supposed to be at Horsted, a manor a little to the left of the road from Rochester to Maidstone, about two miles from the former, where are many large stones scattered about the fields, some standing upright, others thrown down. (See Hasted's *Hist. of Kent.*) The name of Kit's Coty House Mr. Colebrooke supposes to be derived from some old shepherd, who used to keep sheep on this plain, and to shelter himself from the weather in this monument. Mr. Pegge (*Archæol.* vol. iv., p. 110, et seq.) considers Mr. Colebrooke's hypothesis very doubtful, and regards this and other cromlechs as places of devotion rather than sepulchral monuments. Bede (quoted by Mr. Colebrooke) observes that the place where Horsa was buried retained his name: his words are 'hactenus in orientalibus Cantii partibus monumentum habuit suo nomine insigne.' Now we suppose no one will pretend to say that the name of Horsa is incorporated in the present title of this monument. The name is variously written: Keith Coty House, by Camden; Citscote House, by Lambarde (*Perambulation of Kent*, edit. of 1586); Cit's Cotihouse, by Stow; and differently by other writers,

* Hasted says this stone is near seven feet in height, and rather more in breadth. In the other dimensions and weights he agrees with Grose, from whom it is likely he took them. The dimensions given in the *Archæologia* are very different.

Besides the above engagement, between the Britons and Saxons, Aylesford deserves notice as the place to which Edmund Ironside, about the year 1016, pursued the Danes whom he had defeated at Otford. Dr. Plott was inclined to fix the Roman station Vagniacæ at Aylesford; but he does not appear to have any followers in this opinion.

The name of this place has been variously written. The Saxon Chronicle calls it Ægelesford. According to Nennius (a British historian of the early part of the seventh century) the Saxons called it Episford, and the Britons Sathenegabail, or Saissenaig-Hobail, from the overthrow of the Saxons here. Asser (in the time of Alfred, who died about A.D. 900) calls it Ægelsthrep; in Domesday Book it is Elesford, in later writers Aillesford, and in Leland and Camden, Ailesford.

The manor of Aylesford was, at the time of the Domesday Survey, a royal demesne. It was subsequently held by the Greys of Codnor, the Wyatts, and others.

In one place in the parish are several springs, which change the stones in them, as well as pieces of wood, to a carmine hue, which becomes deeper when they are taken out and have become dry. The water flows from a deep chalky loose soil, is very chilly, and has a rough taste; but there are no chalybeate qualities belonging to it. (Hasted's *Hist. of Kent.*)

AYLSHAM, or AYLESHAM (written in Domesday Book 'Elesham'), a market-town in the hundred of South Erpingham, in the county of Norfolk, about 11 miles N. by W. of Norwich, and 120 N.N.E. from London through Norwich, or 118 through East Derham. It is on the right or S.W. bank of the river Bure, one of the streams which unite just above the town of Great Yarmouth. Aylsham was, in the time of Edward II. and III., the chief place in Norfolk for the linen manufacture: and in old records the 'Ailesham webs' and 'Ailesham linens,' and 'the fine cloth of Ailesham' are frequently mentioned. In the reign of Henry VIII. the linen manufacture had in a great degree given way to the woollen, and about the time of James I. it was chiefly inhabited by knitters; but this branch of industry has since decayed, and no particular manufacture now prevails in the town, unless it be that a few looms are employed for the Norwich manufacturers. The market, formerly on Saturday, is at present on Tuesday; the business is chiefly in corn: there are two fairs in the year. The river Bure was made navigable for boats of thirteen tons burden, and drawing two feet four or five inches water, in the years 1773-1779. It had previously been navigable only to Coltishall, six or seven miles below Aylsham. The parish is large, containing 4250 acres. The population in 1831 was 2334.

The church, dedicated to St. Michael the Archangel, was built by John of Gaunt, duke of Lancaster, fourth son of Edward III., in the fourteenth century, and is in the decorated English style. It has a nave and chancel, with two aisles to each; also two transepts; the north is called St. Peter's Chapel, and the south the Chapel of the Virgin Mary. There is a square tower, with a small spire on the top. The church contains several monumental brasses, a richly-carved font, and in the south window a neat painting of the Salutation, put up in 1516. The living is a vicarage, according to Blomefield, though other authorities erroneously call it a rectory. It is in the diocese and archdeaconry of Norwich, and the presentation is in the hands of the dean and chapter of Canterbury, to whom the impropriate rectory was granted. There are two dissenting places of worship.

There is a national school at Aylsham. It was originally a free-school, endowed by Robert Jannys, who was mayor of Norwich in 1517; but the endowment is small (a schoolroom and master's house, with above an acre of land, and 10*l.* paid by the corporation of Norwich), and it is chiefly supported by voluntary contributions. The county bridewell is in this town.

The country round Aylsham is the most agreeable in Norfolk, and when Blomefield wrote his history (towards the middle of the last century) it was much frequented in the summer season on account of a spa or mineral spring, about half a mile from the town. (Blomefield's *Hist. of Norfolk.*)

AYR, a royal burgh on the coast of Scotland, and the county town of the shire to which it gives name. It is situated on the south bank of the river Ayr, near its mouth, and is 77 miles S.W. of Edinburgh, and 34 S.S.W. of Glasgow. The name Ayr is supposed to be of Celtic origin, and to have been first given to the river, from which it has been transferred to the town: the meaning is *thin*, or *shallow*.

The principal street (called High-street) is broad, with two rows of well-built houses. The town is lighted with gas, and was entirely re-paved some years since, so that it is now one of the cleanest and best-paved burghs in Scotland. At the end of the street is the old bridge over the Ayr, connecting the town with the burgh New Town upon Ayr, which, though a distinct parish, may be considered as a suburb; and, with the adjacent villages of Wallace Town and Content, is included in the boundaries of the present parliamentary borough of Ayr. A little below this old bridge is the new bridge, an elegant structure of five arches, which connects Sandgate-street in Ayr with Main-street in New Town. At the junction of High-street and Sandgate-street stand the town public buildings, consisting of an elegant suite of assembly-rooms, and a public reading-room well supplied with periodicals and newspapers. There is a spire in the centre of the building 217 feet high, which is much admired. These buildings were erected by the corporation at the cost of 10,000*l.* Near the south end of Sandgate-street is Wellington-square (the name of which indicates its modern erection), having at its western extremity the county buildings, containing court and record rooms, and other public offices. Behind these is the county jail for debtors and criminals, erected on the most approved principles, and in an airy situation near the sea. Wellington-square is of considerable size. From the houses on the north side to those on the south, it is about 300 feet wide, and the length from the road towards Carrick, into which its eastern extremity opens, to the court-house on the west, is about 600 feet. South of it another new square, of much smaller dimensions, has been commenced, as well as a number of new streets in the same neighbourhood. In High-street is a new building called Wallace Tower, erected in the place of an old building bearing the same name, and said to have been the occasional residence of the Scottish hero. In front of the building is a statue of Wallace, executed by Thom, the sculptor of Tam O'Shanter and Souter Johnnie. Ayr is the residence of persons in easy circumstances, professional men, and tradesmen; and the business which is done arises much from its rank as county town, and from the residence of several of the gentry. There are two banking establishments, besides branches of the Bank of Scotland and the Union Bank of Glasgow. New Town is the seat of the coal trade. The different character of the population of the two places may be estimated by this, that though the parish of New Town has more than half as many inhabitants as Ayr, there are only 40 female servants, while in Ayr there are 589. Ayr has 166 capitalists, bankers, professional and other educated men; New Town only 31.

The harbour is formed by the mouth of the river Ayr; and from each side of the mouth a pier runs out into the sea, as far as low-water mark. The length of the south pier (that of Ayr) is about 1250 feet, and the length of the north pier (that of New Town) about 1150 feet*. There is a bar at the mouth of the harbour, and the depth of the water at spring tides is fourteen feet; so that vessels exceeding 200 tons registered burden can be brought over the bar in safety. There are two light-houses to guide vessels into the harbour. The dues exceed 1000*l.* annually.

There are two parish kirks in Ayr: the old one stands at the back of the High-street, on the east side of the town; and the new one at the head of Cathcart-street. The parish kirk in New Town stands in Main-street, not far from the bridge. Besides these places of worship of the establishment, there are Episcopalian and Catholic chapels, and meeting-houses connected with the following bodies of dissenters: viz., Burghers, Anti-Burghers, Relief, Cameronians, Independents, Methodists, and Moravians.

Close to the new parochial kirk of Ayr is the academy, which, from the celebrity of the teachers, has drawn many families to the town for the education of their children. The number of scholars averages from 500 to 600 annually: the building is very handsome. This has benefited the town by causing an increase of the buildings, and an improvement in the society. Ayr is a place of gaiety and fashion. It has a theatre close to Wellington-square; and its races, which are held on a course about a mile south of the town, are well attended. On the roads to Maybole, and along the

* The measurements generally are made on the plan contained in the boundary reports.

coast to Carrick, are a number of villas, chiefly inhabited by persons who are in business in Ayr.

To the west of the town, between it and the shore, stood the fort built by Oliver Cromwell, but demolished at the restoration of the Stuarts. It was defended by six bastions, and two or three places appear to have been intended for magazines. In its area, of about ten acres, was included the ancient parochial kirk of St. John the Baptist; in which the Scottish Parliament met to confirm the title of Robert Bruce to the throne of Scotland. This kirk Cromwell appropriated as an armoury, and gave the burgh 1000 marks English (666*l.* 13*s.* 4*d.*) to build a new one, viz., that which is mentioned above as "the Old Kirk," built in 1654. The tower of the kirk within the fort still remains, and there are some relics of the fort itself. Ayr is one of the towns at which the high court of justiciary for the southern circuit (corresponding to the English assize courts) is held. Sheriff, justice of peace, and burgh courts, are also regularly held.

The trade of Ayr, in former times, consisted in a great degree in the importation of wine from France, and the population was then considerable. There was a tradition, that nearly 250 years ago 2000 persons died of the plague. Subsequently the town declined; and in 1745 the population (of the parish, as it seems) was reckoned at no more than 2000; but it must have increased rapidly soon after, as in 1755 it was returned at nearly 3000. At present the trade of Ayr consists chiefly in the export of coals to Ireland, and the import of timber and deals from British America, and of iron and hemp from the Baltic. Ship-building and fishing are carried on to some extent, the sand-banks of the coast abounding in all sorts of white fish. A considerable woollen manufactory has been lately commenced, which bids fair to be attended with beneficial results. The rise of New Town into importance is more recent than that of Ayr, and has been owing to its collieries, which are now flourishing. The population of the burgh and parish of Ayr in 1831, was 7606; that of New Town, 4020; and Wallace Town and Content, 4277:—together, 15,903. There are two weekly markets at Ayr on Tuesday and Friday, and four fairs in the year.

Ayr is said to have been a place of note at the Norman Conquest, and was erected into a burgh by William *the Lion*, king of Scotland, in the year 1202. The corporation consists of a provost, two bailies, a dean of guild, a treasurer, and twelve councillors; and has an annual revenue of 2100*l.*, and a debt approaching to near 20 000*l.* The jurisdiction of the magistrates extends over the whole parish. It is a contributory burgh, returning, conjointly with Irvine, Campbeltown, Inverary, and Oban (the last three in Argyleshire), one member to parliament.

New Town is a burgh of barony; the burgesses or freemen are limited in number to forty-eight, and each possesses what is called a lot or freedom, consisting of four acres* of arable land, besides the right of pasturage on the common of 150 acres, which right is enjoyed only by the burgesses. The common revenue of the burgh is small. The community meet every year to elect their magistrates and officers, when two bailies, a treasurer, and six councillors are chosen.

The boundaries of the parliamentary borough of Ayr, as fixed in 1832, comprehend parts of the three parishes of Ayr, New Town, and St. Quivox, and contain a population of 14,817.

The coast to the north and south of Ayr is flat; on the east the country rises gradually. The soil of Ayr parish seems to be better than that of New Town. They are both in the presbytery of Ayr, and the synod of Ayr and Glasgow. New Town was separated from the parishes of Monkton and Prestick, and formed into a separate parish in 1779.

In the parish of Ayr (at least, in that of Alloway, which has been long annexed to it), Robert Burns was born, in 1759. The house stands by the road-side, about two miles from Ayr, and is pointed out to the traveller by a board with an inscription. On a height between the kirk of Alloway and the bridge of Doon, a monument has been erected to the poet's memory. It is built of pure white stone, is in the form of a Grecian temple, and contains a portrait of Burns, and some relics connected with him. The scenery in the neighbourhood is delightful in the extreme, which causes it to be a place much resorted to by strangers. Johannes Scotus, or Erigena, one of the lights of the dark ages, and the Chevalier Ramsay, are claimed as natives of the parish of Ayr.

* It does not appear whether Scotch acres or statute acres are meant. The Scotch acre is rather more than one and a quarter English statute acres.

There was formerly a monastery of Dominicans, or Black friars (the first they had in Scotland), and one of the Observantines. A statue of the Virgin Mary was said to have worked many miracles.

(Webster's *Topographical Dict. of Scotland*; Sinclair's *Statistical Account*; Playfair's *Description of Scotland*, &c.)

AYRSHIRE, a county in the S. W. part of Scotland, deriving its name from the town just described. The Frith of Clyde, an arm of the sea which washes it on the W. side, forms a bay, at the bottom of which is the town of Ayr. This town divides into nearly equal parts the portion of coast belonging to the county, being distant, in a straight line, from its northern extremity about thirty-one miles; and about thirty-five miles from the southern. The distance of the two extremities from one another in a direct line is about sixty miles. Such a line would be in a direction nearly N. by E. and S. by W.

The inland boundary, leaving the northern point of the coast just mentioned, runs in an irregular line towards the S.E., and separates Ayrshire from Renfrewshire and Lanarkshire: after it reaches the most eastern point (which is about forty-four miles from the northern extremity of the coast, and about twenty-six or twenty-seven miles E. by N. of the town of Ayr), it turns to the S.W. and with many windings reaches the southern point of the coast, which is distant from the most eastern point of the shire about fifty-six miles in a straight line. This last part of the boundary divides this shire from those of Dumfries, Kirkcudbright and Wigton.

The southern and eastern parts, with a small portion of the northern part, are the most hilly; and some of the eminences are of considerable height. Along the shores of the Frith are narrow plains, abounding with gravel; the country inland rises into hills, which inclose, as within an amphitheatre, the best part of the county. The principal hills are as follows:—

	Feet.
Knockdolian, a conical mountain near the coast in the southern part of the county . .	1950*
Cairn-table, in the eastern part of the county .	1650†*
Blackside-end, in the parish of Sorn, near the river Ayr	1560†
Carleton Hill } near Knockdolian .	1520‡ or 1554†
Knockdaw } near Knockdolian .	1554†
Knocknorman } near Knockdolian .	1540†
Ben-crard, in the southern part of the county .	1410§
Misty Law, on the border of Renfrew and Ayr .	1240*
Ailsa Craig, a rock off the coast . .	1098§
Brown Carrick Hill, a little way south of the town of Ayr	924§

Ayrshire is a natural basin. Many streams rise near the inland boundary, and flow through the county into the sea; but the shortness of their course prevents them from becoming of much importance in a commercial point of view. The Garnock, rising in the north, and pursuing a course towards the south, unites with the Irvine, which comes from the east; or rather, both these rivers fall into Irvine harbour. The Irvine, which is the larger of the two, is about twenty miles long. The Ayr crosses the county at its widest part, flows from east to west, and falls into the sea near the town of Ayr. It has a course of from thirty to thirty-five miles. The Lugar is its principal tributary. The Doon rises from several small lochs on the S.E. border of the county, and passing through Loch Doon, flows N.W. till it falls into the sea not far from the mouth of the Ayr. It is of about the same length as that river. The Girvan and the Stinchar rise in the same district as the Doon, and drain the southern parts of the county. They are about twenty to twenty-five miles long. The Nith, which flows through Dumfries-shire, and the Cree, which divides Kirkcudbrightshire from Wigtonshire, rise in Ayrshire or on the border.

There are several small lochs near the sources of the Doon, Girvan, and Stinchar. Loch Doon, through which the river Doon runs, is about nine miles long, according to the Appendix to Sir John Sinclair's *General Report of*

* From Webster's *Topographical Dict. of Scotland*.
† From Sir John Sinclair's *General Report of Scotland*.
‡ From Playfair's *Geog. Description of Scotland*.
§ From the *Map of Scotland*, published by the Society for the Diffusion of Useful Knowledge.

Scotland: but by measurement on the Map of Scotland, published by the Society for Diffusing Useful Knowledge, it is not more than about five or six, which agrees with the statement in Chalmers's *Caledonia*. The last authority gives the breadth as three-fourths of a mile. It abounds with fine trout. This fish is common in many of the other streams; but in the river Ayr itself, the quantity has been diminished, partly by the water that comes from the coal and iron mines and lime quarries near the sources of the river.

The Craig of Ailsa lies in the sea about eight miles from the southern part of the Ayrshire coast. It is not a mere rock, but the summit of a huge sub-marine mountain. It shelves rapidly into the sea, and is surrounded by deep water on all sides except the south-eastern, where the accumulation of the debris has formed a small beach. It is about two miles in circumference, and its summit rises to the height of 1098 feet. It is covered with verdure, and is the abode of goats and rabbits, gulls, auks, and gannets. Viewed from the N.W., its form is heavy, but when seen from the north it assumes an elegant conical figure.

It has on the N.W. perpendicular cliffs 200 to 300 feet high; but on the other sides it descends into the sea with a slope presenting here and there some rocky faces, but covered generally with grass or wild flowers. It has springs about 200 feet below its summit.

This island is almost entirely composed of one species of rock, an even and small-grained mixture of white felspar and transparent quartz, the former appearing to predominate. It is mottled by minute and distinct stains of a black colour, which on examination are seen to be small grains of hornblende dispersed through the stone as from a common centre; and giving to it, according to their proportion to the other ingredients, a darker or lighter gray tint. The rock is commonly amorphous, and breaks into irregular masses: but in several parts, and especially on the N.W. side, it has a columnar structure. The columns vary in the number of their sides, but are mostly pentagonal or hexagonal, and from six to eight feet in diameter. They are not jointed, but rise continuously to the height of 100 feet. Their fracture is at right angles to their axes, and hence their summits are flat, and afford a habitation for numbers of gannets. Their dimensions far exceed those of the basaltic columns of Staffa, and they possess a requisite which the latter want, the power of catching from their lighter colour the most varied lights and reflections. There is an old ruinous castle on the rock. (See an account of Ailsa by Dr. M'Culloch in the *Transactions of the Geological Society*, vol. ii. No. 18.)

The mineral riches of Ayrshire are considerable. Coal is abundant especially in the middle and northern parts of the county, which may be considered as included in the great coal-field of Scotland. Harbours and railroads have been formed to carry on the export coal trade. The coal is of different varieties, among which is the blende coal, found in the earth charred, or reduced to the state of a cinder. It burns without smoke or much flame, and is used for drying grain and malt. Considerable quantities are exported to Ireland and to the Western Isles. Cannel coal appears to have been dug formerly, but we are not able to ascertain whether or not it is procured at present. Near Saltcoats eleven different strata or seams of coal have been discovered. The coal of these seams is not all of the same quality. They were discovered by Mr. Cunningham, who sunk shafts, constructed the harbour of Saltcoats, and built saltpans to consume the otherwise useless part of the coal. The coal-field near Saltcoats is divided into three parts by two dykes or natural walls of whinstone.

The county affords abundance of limestone. Freestone is quarried in great quantity; and there is some whinstone and puddingstone. Mill-stones of coarse granite are quarried at Kilbride, near the northern part of the coast, and are in great request for their hardness and durability. They are said to be exported even to the West Indies and to America. Near Auchinleck is a quarry of black stone much used for building ovens, on account of its power in resisting the action of fire. The whetstone known by the name of Water-of-Ayr stone is found near the banks of the river Ayr. Marl also is procured in many places.

Ironstone is obtained; and at Muirkirk, near the eastern extremity of the county, extensive iron works are carried on. Lead, plumbago or black-lead, antimony, and copper (of each of which the quantity is small) may be considered as nearly completing the list of all the minerals of Ayrshire. (Playfair's *Geographical Description of Scotland*; *Beauties of Scotland*.)

There are several mineral springs, but none of them of such repute as to attract many visitors.

The soil of this county is thus distributed by Chalmers in his *Caledonia*.

Clay soil . . .	261,960 acres
Sand or light soil .	120,110
Moss and moor land .	283,530
Total . .	665,600 statute acres.

The light or sandy soil is met with along the coast, interspersed with a deep and fertile loam. On the eastern boundary the moor lands, intersected with mosses, occur. Of these mosses, Aird's moss and Moss-Mallock, which last is partly in Lanark and Renfrew shires, may be noticed for their extent. In the parish of Muirkirk and New Cumnock, which are in the east part of the shire, more than half the land is moss. The clay soil, which constitutes so large a portion of the land, varies in its character; it is, in some parts, strong and productive, while in others it is spongy, wet, and cold; producing grass unfit for fattening cattle, and merely sufficient for keeping alive a breeding stock. (Fullarton's *General View of the Agriculture of the County of Ayr*.)

Till about the middle of the last century, the agriculture of Ayrshire was in a most wretched condition. There was scarcely a practicable road; the farmers' houses were mere hovels; the lands were overrun with weeds and rushes. The arable farms were small, for the tenants had not stock for larger occupations; the tenure was bad, and the tenant harassed by a multitude of vexatious services to the landlord. The land, divided into the croft or infield, and outfield, was either neglected or worn out by successive crops of oats, as long as they would pay for seed and labour, or by an ill-managed rotation of two or three successive crops of oats, one of bear (or four-rowed barley), followed by a year of rest. The wretched condition of the country may be judged of by the fact, that little butchers' meat was used by the farmers, except a portion salted at Martinmas for winter stock; porridge, oatmeal cakes, and some milk or cheese, constituted the chief of their diet. Even in the town of Ayr, containing from 4000 to 5000 inhabitants, not more than fifty head of cattle were slaughtered annually. A succession of bad seasons, at the end of the seventeenth and beginning of the eighteenth centuries, obliged hundreds of families to fly for subsistence to the north of Ireland; and the poor were not unfrequently obliged to subsist by bleeding their cattle, and mixing the blood with any oatmeal they could procure. (Fullarton's *General View, &c.*)

Wheat is not cultivated to any great extent; and though the quality of that which is raised is very good, yet the cultivation of it is attended by many disadvantages. Big or bear is generally preferred to the common barley; but the principal grain raised is the oat, in which the county stands pre-eminent, both for quality and produce. Turnips are increasing; potatoes are universally cultivated, and the artificial grasses on all improved farms. Flax also is raised. The best rotation of crops is considered to be oats or beans raised after ploughing up a grass-field: after these, in dry soils, turnips or other green crops, such as kale, vetches, tares, or potatoes. In very strong soils, drilled beans, cabbages, and carrots may be substituted in the place of turnips. These are followed by a crop of barley sown with artificial grass seeds. After the clover, wheat or oats, and, in very light lands, rye. (Fullarton's *General View, &c.*)

Lime is the most common manure. On the coast, seaweed is much used, and soapers' waste is in great request with some farmers.

The cattle in the southern part of the county are chiefly reared for the market, and are for the most part of the Galloway breed. They are commonly black or brindled (though some are white or dun), and the best are without horns. They are very hardy, and grow fat where the large heavy breed of some other counties would be starved. Great numbers are yearly sent to England. The cattle in the northern part of the county is partly of the Dunlop breed, which has been established there for a century and a half. They are remarkable for the quantity and quality of their milk. Besides these, there is a breed of brown and white mottled cattle, which is considered to have

been introduced at a considerably later period. They are, like the others, excellent milkers. The dairy is an object of great attention in Ayrshire, and a considerable quantity of cheese is made. The Dunlop cheese is in good repute; and the making of it forms almost the sole business of the farmers in the parish of Dunlop. Other breeds of cattle are more or less in use among the farmers: as the Alderneys, which are occasionally introduced to give richness and colour to the milk and butter; the Irish, which are large, wide-horned, and raw-boned, but difficult to fatten; and a small Highland breed, which, having been bred on the hills, improve rapidly in the low country, and are esteemed superior to any in the flavour of the meat. A proportion of Dutch or Holderness cattle had been propagated in former times, but they seem to have declined; and the attempts made to introduce the best breed of the wide-horned Craven, Lancashire, and Leicestershire cattle appear to have failed. Oxen, it may be observed, are scarcely ever used at plough.

On the dry lands along the coast a small white-faced breed of sheep has long been maintained. They produce but little wool, and that of middling quality, and seem to have very little to recommend them. The native sheep is bred in great numbers on the moors. These are among the hardiest, most active, and most restless of the sheep tribe. They are round, firm, and well-shaped, with black faces and horns. The wool is scanty in quantity, and coarse in texture; but the flesh at five years old is excellent, and the tallow equal to one-fourth of the weight of the carcase. There is a breed at one part of the coast, the wool of which is very fine. The number of sheep in Ayrshire has been stated to exceed that of any other county in Scotland.

This county, with the adjoining one of Lanark, possesses a valuable breed of hardy and strong work-horses, superior perhaps to any in the kingdom. They were supposed to have originated from some Flanders or Holstein horses, brought over in the seventeenth century by one of the dukes of Hamilton; but it appears that great pains had been taken, at periods long anterior to that, to improve the Scottish horses by importations from Denmark, Flanders, and Germany. There is hardly an ass to be seen in Ayrshire.

Although a prejudice was long entertained against swine, it has for some time been giving way; and a considerable number are now fed upon the refuse of the dairy: but the breeding of them has not been so systematically conducted as in some counties of England. Rabbits are more numerous than in any other county in Scotland. They are bred for their fur; and are killed from the beginning of December to the end of February. Dunghill fowls are reared at almost every farm-house and cottage, but other kinds of poultry are not numerous; neither are pigeons nor bees.

Between two and three centuries ago there were considerable forests in this county. At the time of the Reformation a forest extended ten miles eastward from the town of Ayr; but this, with every other wood of any extent in the county, excepting Dalrymple wood on the river Doon, belonging to the Marquis of Ailsa, has been entirely destroyed; and nearly a century ago there was little wood in the county, except the natural woods of oak and birch on the banks of the rivers Girvan, Stinchar, Doon, and Ayr. There were clumps of ash and sycamore round most of the farm-houses in the north, and some of those in the midland and southern parts. At present all the lower parts of the country and the banks of its numerous rivers are thickly studded with plantations around the mansions of the proprietors. It is to be regretted that, in the early period of improvement, the Scotch fir was preferred to the larch. Plantations of willows for hoops and baskets have been made with considerable benefit. There is a reed near the lakes in some parts which is excellent for thatching.

The climate of Ayrshire is moist, but far from unhealthy. The westerly winds blow severely on the coast; and the part near the Isle of Arran is subject to frequent and heavy showers, the clouds being attracted by the lofty mountains of that island. The air is milder and more temperate than in the east of Scotland; and towards the western or coast side it is pure and free from fogs. Snows melt as they fall on the coast.

The manufactures of Ayrshire are important, for the district possesses considerable advantages. Fuel is abundant; materials for building are at hand; and there are channels of communication open. The vicinity of Glasgow and Paisley seems to have given an impulse to improvement. The woollen manufacture has been long established; and bonnets and serges were early made at Kilmarnock. Improved machinery soon came in, and carpets, cloths (except the finer broad cloths), and stockings have been made. Towards the end of the last century the woollen manufacture extended to other parts of the county, and is carried on to a considerable extent by the aid of machinery. Dyers and fullers have established themselves in connexion with this manufacture. The linen manufacture has also been introduced, though never carried to any great extent. In the village or town of Beith there is a considerable manufacture of thread. The silk manufacture was tried above sixty years since, but it did not become permanent.

The cotton manufacture, having been established in Glasgow and Paisley, soon extended itself into Ayrshire. Great cotton works were erected at the village of Catrine on the river Ayr; and the weaving of muslins has been established nearly all over the county. Bleaching, as connected with the cotton trade, has also been extensively carried on.

Leather is another article of considerable importance. Tanneries have been greatly extended; and the leather is employed in making shoes, boots, and saddlery. Of the latter some is exported to foreign parts. The iron-works of Muirkirk have been already noticed. There are foundries in many other places. Pottery for domestic purposes is made, but not to any great amount, or with much profit. Kelp, soda, and salt have all been made to advantage along the shore. It may be remarked here that neither brick nor tile are much used in this county in the erection of houses, the numerous quarries supplying plenty of stone for building, and tiles being neither so handsome as slate nor so warm as thatch.

Formerly there were no other roads than the pathways which led to church or to market; but now roads have been made in almost every direction in which they are wanted. There is a rail-road nine miles in length from Troon Point on the Frith of Clyde to Kilmarnock, made by the Duke of Portland; and others in different parts of the county, as well as some small canals, either for conveying coals to Saltcoats, the place of export, or transporting minerals to the iron-works at Muirkirk. A canal of thirty-one miles was projected from Glasgow to Ardrossan; a third part has been executed, viz. from Tradestown opposite Glasgow, past Paisley, to the village of Johnstone: a rail-road has been commenced from Ardrossan to the canal with a view of completing the communication.

The county of Ayr contains the three antient districts of Carrick, Kyle, and Cunningham. Carrick includes the country to the south of the river Doon; Kyle, the country between the Doon and the Irvine (which is again subdivided into King's Kyle, south of the Ayr, and Kyle-Stewart, north of that river); and Cunningham, the district north of the Irvine. These divisions are marked in many maps, and are used in speaking of the county; but they have had no distinct legal existence since the act abolishing hereditary jurisdictions. The extent of these different districts and their comparative population are thus given in Sir John Sinclair's *General Report of Scotland, Appendix*, vol. i.

Carrick	396 sq. miles	33 inhab. to the sq. mile.
Kyle	380 „	75 „
Cunningham	260 „	135 „

This gives for the whole county 1036 square miles, or 663,040 acres, which is not far from the statement given by Mr. Chalmers in his *Caledonia*.*

The comparative population, as given by Sinclair, was calculated from returns previous to that of 1801. The proportion calculated from the returns of 1831, which gave 145,100 inhabitants to the county (assuming the calculation of surface given above to be accurate), is nearly as follows:—

Carrick	between 64 and 65	to a square mile.
Kyle	between 147 and 148	„
Cunningham	244	„
For the whole county	140	„

The chief towns in Ayrshire are as follows. In Kyle, Ayr, the shire town, a royal burgh, having in its parish a population of 7606 persons; and Newtown upon Ayr, which may be regarded as a suburb of Ayr, with a population in the parish of 4020 persons. To these may be added the village of Troon, which has risen to importance from the improvement of its harbour, the rail-road from Kilmarnock, the opening of the extensive quarries, and the flourishing state of the coal-trade. In Cunningham is the burgh

* Playfair's *Description of Scotland* gives 1045 square miles as the superficial measurement.

of Irvine or Irwine, with a population in the parish of 5200 persons: it is at the mouth of the river Irvine. The large manufacturing town of Kilmarnock (population of the parish 18,093); the ports of Saltcoats (population not ascertained), Ardrossan (population of the parish 3494); and Largs (population 2045), which is frequented as a bathing-place, are also in this division of the shire, as well as the inland towns of Stewarton (which has 2234 inhabitants), and New Milns in the parish of Loudon (population 1650). [See ARDROSSAN, IRWINE, KILMARNOCK, LARGS, SALTCOATS, and STEWARTON.] In Carrick, the towns of Girvan (population of the parish 6430) and Maybole (population of the parish 6287) have risen in importance by the increase of manufactures, and by the influx of operative weavers, chiefly Irish. [See GIRVAN and MAYBOLE.] Ayr and Irvine have custom-houses.

The county returns one member to Parliament. Ayr and Irvine, with Campbeltown, Inverary, and Oban, in Argyleshire, make up one district of burghs, and Kilmarnock is a contributory burgh of the Renfrew district.

The population returns and Playfair's *Description of Scotland* contain a list of forty-six parishes, of which sixteen are in the presbytery of Irvine, twenty-eight in that of Ayr, and two in that of Stranraer, the chief part of the jurisdiction of which is in Wigtonshire, in which Stranraer is situated. Ayr and Irvine presbyteries are in the synod of Ayr and Glasgow: Stranraer in that of Galloway.

There are in Ayrshire several monuments of antiquity. In Galston parish is a cairn of gray stones, sixty feet in diameter; and in the parish of Sorn one much larger. At the base it is about 250 feet in circumference, and it rises ten feet above the surface of the ground. The stones, which are not large, are covered with gray moss. There is no tradition about the time or cause of collecting this mass of stones. In some parishes of the county are oval or circular encampments, the origin of which has been ascribed, perhaps without foundation, to the Danes. One of these, on Warley Hill in the parish of Dundonald, consists of two concentric circular embankments of loose stones and earth; the inner one incloses a space of one acre; the outer one a space of ten acres. There is another camp on the same hill about 200 yards off, comprehending about an acre. From these encampments there is a fine prospect. There are some vestiges of an encampment on a hill called Knockgeorgan, in the parish of Ardrossan; and on the eastern extremity of the same ridge are the remains of an antient structure used as an alarm-post. From this post and from Knockgeorgan signals were made by smoke by day and fire by night.

There are the ruins of several castles and of religious houses, the relics of a somewhat later age than the foregoing. Of the castles, Loch Doon Castle, on an island in Loch Doon, deserves notice from the circumstance that it was built of large blocks of freestone, and no quarry is known to exist within less than eight miles, and the intervening space is rough and mountainous without the vestige of a road. Turnberry Castle, on the coast of Carrick, was the residence of the Earls of Carrick, and among others of the immediate ancestors of Robert Bruce. Being in the occupation of the English, it was stormed by Bruce, and does not appear to have been afterwards inhabited. Little more than the foundations remain: the ruins cover an acre of ground. Among the other ruined castles are those of Thomastown; Fortencross or Portencross, opposite the island of Little Cumbrae; Dunure, on the Carrick coast; Dean Castle, between Kilmarnock and Stewarton; Terrenzean, in the parish of Old Cumnock; Auchinleck and Dundonald (the last a royal castle, where Robert II. of Scotland, the first king of the Stuart line, lived and died), in the parishes so called; Kemplaw, in Dundonald parish, and Carleton Castle, and others in Colmonell parish. The castles of Sorn, in the parish of Sorn; Dolquarran, on the banks of the Girvan; and Greenand, on the coast of Carrick, are still inhabited. Skelmorly Castle, on the coast, in the northern part of the county, and Eglintoun Castle, near Irvine, are the residences of the Earl of Eglintoun; and Culzean Castle (a modern edifice near Thomastown), of the Marquess of Ailsa.

Of the ecclesiastical ruins, the chief are those of the Abbey of Crossragwell, otherwise Crosregal, Crosragmol, Crosragmer or Crosragwell, in the parish of Kirk Oswald. This abbey is more entire than any other in the west of Scotland; but as it lies low, and the surrounding country swells into hills on all sides, there is but a confined prospect from it. The walls of the church are almost entire, being about 164 feet long and 22 feet high. The abbey stood in an enclosure of about eight Scotch acres, which was surrounded by a strong stone wall, now almost entirely demolished. Kilwinning Abbey, a splendid house, was destroyed about the time of the Reformation. A part of it was used till 1775 as the parish church. At Maybole are the remains of an old collegiate church. The ruined kirk of Alloway near Ayr has been immortalized in Burns's *Tam O'Shanter*.

Ayrshire was inhabited, at the time of the Roman invasion under Agricola, by the great tribe of the Damnii. At a later period, the descendants of the Scots, who came over from Ireland to the peninsula of Cantire, and crossed from thence into Ayrshire, were mingled with the Damnii. In the eighth century, Kyle fell into the hands of the Saxon kings of Northumberland. In the ninth century, an attempt made by Alpin, king of the Scoto-Irish in Kintyre, to subjugate the district, failed. The invader was defeated and killed. The people of Ayrshire at that time spoke the Gaelic language, and their country formed part of Galloway. The twelfth century was marked by the introduction of colonists from England, with new principles, customs, and jurisprudence; but the change was very gradual, and even at the end of the sixteenth century the Gaelic language was still spoken in Ayrshire. In the middle of the thirteenth century, the Norwegians invaded this part of Scotland; but in 1263 they were defeated and driven to their ships by the king of Scotland, Alexander III. The decisive battle took place at Largs in Cunningham. The earldom of Carrick came soon after, by marriage, into the family of the Bruces, lords of Annandale; and, on the accession of Robert Bruce to the throne, was merged in the crown.

In the religious troubles which occurred in the time of the later Stuarts (Charles II. and James II.), the men of Ayrshire supported the Covenant with much zeal, and suffered severely from their steady adherence to the cause which they had embraced: many were put to death, and the highland clans were brought in to live at free quarters among them. They consequently rejoiced in the revolution of 1688, which overthrew the power of their persecutors. In the moors, mosses, and fastnesses of Ayrshire are several monuments to the memory of those who fell in the troubles; and especially of the field-preacher Richard Cameron and some of his associates, who were killed after a skirmish with a party of the military in Charles II.'s time. The character of the people at the present day indicates their descent from the zealous presbyterians. They are remarkable for their regard for religion, their decency, and good conduct. Burns's *Cotter's Saturday Night* may be regarded as descriptive of the manners of many of those in humble life. Their religious fervour has led them however, in some instances, into irregularities and errors, as was shown by the rise of the prophetess, Mrs. Buchan, towards the close of the last century. Dissenters from the kirk are said to have increased much of late years in the populous towns and villages.

The island of Little Cumbrae, about a mile in length and half a mile in breadth, belongs to Ayrshire. There is in the south part of the island an antient castle, which was surprised and burnt by Cromwell's soldiers. There are also several caves. The loftiest eminence in this island is 780 feet high. The whole island belongs to the Earl of Eglintoun. There is a light-house upon it. Great Cumbrae is in Bute-shire.

(Chalmers's *Caledonia;* Sir John Sinclair's *General Report of Scotland;* Colonel Fullarton's *General Report on the Agricultural Surveys;* Playfair's *Description of Scotland; Beauties of Scotland, &c.*)

AYUNTAMIENTO, JUSTICIA, CONCEJO, CABILDO, REGIMIENTO, are the names given in Spain to the councils of the towns and villages. These councils are in general composed of the corregidor, alcalde, regidores, jurados, and personeros, or hombres-buenos. All these officers, with the exception of the corregidor, who was always appointed by the government, were originally elected every year by the inhabitants of the concejo or commune. To be the head of a family, a native of Spain, and settled in the commune, were the only qualifications required either from an elector or a candidate. The origin of this institution may be traced to the remotest period of Spanish history. (See Masdeu's *Historia Critica,* vols. iv. to ix.,

more particularly vol. viii. book 3, pp. 33-49.) It existed in the Peninsula under the Romans; and under the Goths it was called the Council of the Præpositus or Villicus—a political and military governor appointed by the king. The individuals who formed the council were called priores or seniores. In the eleventh and twelfth centuries, the territories which the cruel and devastating wars between the Christians and Moors had deprived of inhabitants were again peopled, and the kings of Leon and Castile granted particular *fueros*, or charters, by which many great privileges were bestowed on such as chose to settle in these new colonies. The colonists acknowledged the king as their only lord, and bound themselves by a solemn oath to observe all the laws contained in the fuero, and to pay a certain tribute to the king, called Moneda-Forera, or charter-money. The king likewise was bound by an oath to maintain faithfully all the privileges granted in the fuero, not to defraud the concejo or any of its inhabitants of their property, and to keep them under his protection. Every man in the concejo was a soldier, and was bound to arm himself, and to follow the pennon of his alcalde, when legally summoned to the defence of the concejo or of his country. In some of these concejos the king appointed an officer who had the political and military command in the commune, collected the revenues, and watched over the observance of the fuero; but this officer had not either a voice or a vote in the ayuntamiento, and was in every other respect subject to the authority of the concejo. These officers were called domini, dominantes, and also seniores. The administration of justice, the levying of taxes, raising of troops, and all the interior policy of the concejo, devolved upon the ayuntamiento. The members of this body were chosen every year by ballot, by the inhabitants of the commune. Whoever solicited a vote, either for himself or for his friends, or endeavoured to bribe the electors by money, or even by the favour of the king, was thereby deprived of the privilege of ever becoming a member of any ayuntamiento. To supply the expenses of the concejo, to provide for the erection of public buildings, the endowment of schools, the construction of roads, and other works of public utility or ornament, every concejo possessed certain property, which was inalienable. This fund was increased by the mulcts imposed on certain criminals by the ayuntamiento. Any individual of that body, who was found guilty of malversation of this property, was obliged to restore double the sum he had misapplied. All the citizens enjoyed equal rights in these concejos: Christians, Moors, and Jews, all had the same privileges. No nobleman was allowed to settle in them, unless he first renounced all the privileges of his class, and became a commoner; nor was he allowed even to build a castle or a palace by which he might be distinguished from the rest of the citizens. If any one attempted to do so, the alcaldes were bound by fuero, and under the most severe penalties, to expel him from the concejo. Every individual who resorted to these colonies found in them the most perfect security against oppression; and in some of them, as was the case in Cuenca, he could not be prosecuted for any crime which he might have committed, or even for debts contracted, previous to his settling in the concejo: many accordingly withdrew from the tyrannical rule of the feudal lords, and flocked from every quarter to this seat of liberty.

Such were the immunities enjoyed by these colonies and their consequent state of prosperity, that many barons voluntarily renounced the privileges of their rank to settle in them. Many behetrias, or free cities, which were at liberty to place themselves under the protection of any lord they chose, preferred the patronage of the king in order to enjoy the same privileges as the concejos. Similar fueros were also granted to such cities as rendered eminent services in the wars against the Moors. In all ordinary cases the ayuntamiento decided alone, but every subject which could interest the whole community was, and is even at this day, particularly in villages, decided in *concejo abierto*, or open council, in which all the citizens in the commune have a voice. When the king ordered any thing *contra fuero*, the alcalde, placing the king's order upon his head as a sign of respect, pronounced his veto by the well-known formula of 'obedezcase y no se cumpla,' i. e., let it be obeyed and not fulfilled. These ayuntamientos had also the privilege of sending their procuradores, or deputies, to the Cortes, or great assemblies of the nation; and these procuradores formed there the Brazo de las Universidades, or the house of commons. This Brazo was always the most powerful auxiliary of the crown, and the most effective check against the pretensions of the barons in the times of feudalism. During the disturbed minorities of Ferdinando IV. and Alonso IX. of Castile, the municipal constitution of Spain suffered greatly. The kings and the feudal lords, always ready to take every advantage to forward their own interest, and to encroach upon the liberties of the nation, availed themselves of the pretext of disturbances in the elections of the ayuntamientos, and the king usurped the right of appointing their members in some concejos. The Cortes constantly remonstrated against this abuse, and several laws were enacted to prevent its continuance. Another innovation introduced by the kings was that of appointing corregidores or *jueces asalariados*, salaried judges, to administer justice in the concejos in the name of the king, thereby depriving the ayuntamiento of the judicial power. Under John II. of Castile, in the fifteenth century, on account of some dispute in the city of Toledo, it was established that the ayuntamiento of that city should consist of sixteen regidores—eight for the nobility, and eight for the commons, all appointed by the king, and holding their offices for life. 'This abuse,' says Mariana, 'led to another, viz., that of selling these offices, to the great detriment of the common weal, and thus, institutions which are good in their origin and tendency are often turned into evil.' The nation continuing its remonstrances against this abuse, a law was enacted about 1540 (see *Recopilacion*, book vii. title 3rd, law 25th), by which it was ordered that no town having a population under 500 vecinos (about 2000 souls) should have an ayuntamiento appointed by the government. Under the profligate government of Philip IV., the municipal offices were shamefully sold to the highest bidder in every large city; but in the small towns and villages, where these offices offered little or no inducement, they continued to be elective. Some towns bought the privilege of electing their municipal officers, and were called on that account *concejos redimidos*, or redeemed councils. Under the presidency of Count Aranda it was established that two officers named personeros diputados del comun, or hombres-buenos, should be elected in every town to protect the interest of the people in the ayuntamiento. The Cortes of 1812 abolished all the abuses, and all the towns were restored to their primitive right of electing their municipal officers. Ferdinand VII., on his return from France in 1814, rescinded every thing which the Cortes had done, and restored the ayuntamientos perpetuos. Under the administration of Burgos, an innovation has been introduced by which the ayuntamientos are at present composed partly of the old perpetual regidores and partly of officers elected annually by a certain number of individuals the richest in the commune.

Notwithstanding the continual efforts of the government to destroy this salutary institution, so contrary to that centralizing system first established by Napoleon, and unfortunately blindly followed by more than one enlightened nation, it still exists, and has been at all times a check against despotism—feeble indeed, but yet sufficient to have still preserved in the Spanish nation a democratical spirit which, on all occasions of great national interest, has manifested itself in its fulness. Thus we have seen in our days, not to quote other more remote examples, that when the Spanish government in 1808 deserted the nation, delivering it into the hands of the French; when the nobility, the high clergy, and all the high civil and military functionaries acknowledged the disgraceful transactions of Bayonne, the alcalde of Mostóles (see Schepeler, *Histoire de la Révolution d'Espagne*, vol. i. chap. 2, p. 55), an insignificant village in the neighbourhood of Madrid, raised the national standard against the emperor of the French, and the whole nation flocking round it, exercised in its fulness that portion of the sovereign power which it had always preserved. Ignorance of the municipal constitutions of Spain is one of the causes that politicians, both native and foreign, are so frequently deceived in their judgments and calculations relative to Spain, particularly in times of great political excitement. This ignorance is perhaps one of the reasons why some individuals have so unjustly accused of dangerous innovations the principles of the constitution of Cadiz, in which however nothing else is contained than doctrines sanctioned by all the local fueros; and no rights are there proclaimed but those which the nation at all times had exercised, and saw them actually exercising. (See Marina, *Ensayo de la*

Antigua Legislacion de España; Recopilacion de las Leyes de estos Reinos, book vii.; Mariana, *Historia de España*, book xx. chap. 13.)

AZA'LEA (in Botany) is the name of a genus belonging to the natural order *Ericeæ*, and consisting of shrubs remarkable for the beauty and fragrance of their flowers; on which account they are very generally cultivated in Europe. By some botanists the genus is esteemed the same as *rhododendron*, in which it is accordingly sunk; and it must be confessed, that it is difficult to point out any positive character, except the thin and generally deciduous leaves by which azalea can be distinguished from rhododendron. It will however be more conformable to popular usage if we speak of them apart; and, as the subject is one of great general interest, we shall do so at some length.

Since the year 1734, when we have the earliest record of the existence of American azaleas in England, in the garden of Mr. Peter Collinson, they have been so generally diffused, and have been so much altered from their wild characters by domestication, that it is no longer possible to trace them, in a satisfactory manner, back to their original types. It is not by merely raising them from seed that this deviation from their wild characters has been brought about, but also by their having been either accidentally or artificially hybridized till all trace of their original forms is lost in new and unnatural features. We shall therefore state, in the first place, the characters by which the species are distinguished on their native hills, and then advert to the numerous garden varieties in cultivation in this country; premising only that it is doubtful whether the following are the only original species from which our garden plants have descended.

Four principal forms exist, to one or other of which all these species are referable: viz., 1. those with glutinous flowers and short stamens; 2. those with glutinous flowers and stamens much longer than the corolla; 3. those with flowers that are scarcely at all glutinous, and stamens much longer than the corolla; 4. those with flowers that are scarcely at all glutinous, and short stamens. These will form the natural sub-divisions of the genus.

Section 1. *Flowers covered with numerous glutinous hairs. Stamens little or not at all longer than the tube of the corolla.*

1. *Azalea viscosa*, Linn. (A. odorata, vittata, fissa, lucida, *of authors*). Leaves shining, green on both sides, fringed at the edge.—A native of swamps, copses, and wet and shady woods, throughout the United States of North America, from Canada to Georgia. It is a shrub from three to eight feet high, with the young branches covered with numerous stiffish brown hairs. The leaves are bright green, shining, and smooth on the upper side; paler but not at all glaucous, on the under side. The flowers are deliciously fragrant, usually white or nearly so, with a long narrow tube, and a contracted limb with narrow sharp-pointed divisions; they are covered all over externally with glutinous brownish-purple glands. The stamens are not so long as the segments of the corolla, but longer than its tube. It is one of the most common species and the most fragrant. Gardeners seldom distinguish it well from *A. periclymena*, or *A. nudiflora*, supposing its difference to depend upon its flowers appearing after the leaves are expanded; this is however an unimportant and accidental circumstance little worth attention; the essential difference between this and *periclymena* consists in its glutinous corollas and very short stamens. *Azalea nitida* of the gardens, and of the *Botanical Register*, plate 414, is this species.

2. *Azalea glauca*, Lamarck. Leaves dull-green, somewhat wrinkled and wavy at the edge, glaucous on the under side, fringed at the edge.—Found in clayey swamps in the middle states of North America, where it flowers rather earlier than the last. In a wild state it is a much rarer plant, and does not grow so tall; its white flowers appear in the utmost profusion, and are very like those of *A. viscosa*, but the stamens are a little longer. Some botanists consider it a mere variety of that species; but it is readily known by its broader and more wavy leaves, which are not at all shining, but have a dull grey surface, and are very glaucous on the under side. In the nurseries it is called *A. viscosa floribunda*.

Section 2. *Flowers covered with numerous glutinous hairs. Stamens much longer than the corolla.*

3. *Azalea nitida*, Pursh. Branches with very few hairs. Leaves small, rather leathery, shining, and smooth on both sides.—Found in deep mossy swamps on the mountains of North America, from the state of New York to Virginia, flowering in June and July. The leaves of this plant, which appear a little earlier than the flowers, are dark-green, shining, and smaller than in any other species; the only parts which are hairy are the mid-rib and the margin. The flowers are white, with a red tinge, and glutinous; their tube is a little longer than the segments; the calyx is very short; the stamens are longer than the corolla. It is doubtful whether this is to be met with in cultivation. (See No. 1.)

4. *Azalea hispida*, Pursh. Branches clothed with numerous stiffish hairs. Leaves long-lanceolate, covered with bloom on both sides, hairy on the upper surface, and smooth on the lower.—A native of the borders of lakes; and on the highest part of the Blue Ridge in the state of Pennsylvania, flowering in July and August. An upright shrub, growing ten or fifteen feet high, with a bluish aspect, by which it may be recognized at a distance. It is distinguished from *A. glauca* by its greater stature, its longer stamens, and its very erect mode of growth; its glaucous bloom will readily separate it from all the other species. Pursh says its flowers in a wild state are white with a red border, and a tinge of red in the tube, which makes them appear to be of a rose colour before they are open; and that they frequently have ten stamens. In gardens it is often called *A. glauca*.

5. *Azalea pontica*, Linn. Leaves large, not shining, puckered, reflexed and wavy at the edge, green and slightly hairy on both surfaces. Flowers yellow, long-stalked, covered with long hairs and glutinous glands.—Common in the Crimea, the Caucasus, and the eastern parts of Poland, rendering the whole country a brilliant garden with its golden fragrant flowers, during the month of May. Although found on the mountains, it is by no means an alpine plant, but disappears in the higher regions of the air, where the Pontic rhododendron takes its place. Its flowers abound in a fluid nectar, which is said to render poisonous the honey collected by the bees at the time of its blooming. It is readily known by its large yellow corollas from all the American species. in the gardens it deviates to a *pale straw colour*, which is called *white* by collectors.

Section 3. *Flowers with scarcely any glutinous hairs. Stamens much longer than the corolla.*

6. *Azalea periclymena*, Persoon. (A. nudiflora, *Willd.*; periclymenoides, *Michaux*; coccinea, speciosa, rubra, rutilans, carnea, alba, papilionacea, partita, polyandra *of the Gardens.*) Leaves flat, nearly hairless, except the midrib, which is bristly. Tube of the corolla much longer than the limb, which is white.—Found wild on the sides of hills, in woods, all over North America, where it is called *Upright Honeysuckle*—a name which it well merits for its fragrance and beauty. It is a smaller plant than *A. viscosa*, rarely exceeding the height of a man, and being generally much shorter, and exceedingly branched. By botanists it was formerly distinguished by its flowers appearing before its leaves, whence it was called *A. nudiflora*; but as this is an uncertain circumstance, the name we have adopted from Persoon deserves the preference. Its leaves are bright green, and nearly smooth on the upper side, flat, and by no means puckered or wavy; their under side and the branches are slightly downy, and their margin covered with stiff hairs. The flowers, which appear in clusters at the ends of the branches, are almost entirely destitute of the glutinous glands of *A. viscosa*; they have generally more red than white in their colour, and have remarkably long stamens. Our gardens are filled with variations from this species: it is easily known by its smooth hairy flowers and long stamens from *A. viscosa*, which is far more sweet; of the varieties the handsomest is the old scarlet azalea.

7. *Azalea canescens*, Michaux (A. bicolor, *Pursh*). Leaves hoary, especially beneath, where they are also downy; their midrib without any stiff hairs. Tube of the corolla of about the length of the limb, which is white.—On barren sandy hills, in the southern parts of the United States, on the banks of rivers in South Carolina, and on the mountains of Virginia, this species grows wild; it resembles *A. pericly-*

mena very much, but is a tenderer plant, and has the same grey appearance which renders *A. glauca* so conspicuous an object. Its flowers are small and white, with a deep rosy red tube; they appear the earliest of the American species.

8. *Azalea calendulacea*, Michaux. Leaves [illegible], shining, bright green, slightly hairy on both sides, reflexed and wavy at the edge, their midrib without stiff hairs. Tube of the corolla not longer than the broad orange-coloured, or scarlet limb.—A native of moist places in the southern states of North America; sometimes inhabiting the banks of rivers, but more frequently adorning the mountains with a garment of living scarlet. It is very nearly the same as *A. periclymena*, from which it is distinguished by its larger and more orange-coloured flowers, and by its rugose wavy leaves. It is certainly no variety of *A. pontica*, as some have thought, its downy flowers without glutinous glands distinguish it at first sight.

9. *Azalea arborescens*, Pursh. Leaves covered on the underside by a glaucous bloom, and smooth on both sides. Tube of corolla longer than the segments. Calyx with leafy divisions.—The only botanist who has described this remarkable plant is Pursh, who says it grows on rivulets near the Blue Ridge in Pennsylvania, flowering from May to July. He speaks of it thus: 'This beautiful species has, to my knowledge, not yet been introduced into the gardens. I have only seen it in its native place, and in the garden of Mr. John Bartram, near Philadelphia. It rises from ten to twenty feet high, and forms, with its elegant foliage and large abundant rose-coloured flowers, the finest ornamental shrub I know. The flowers are not so much pubescent as the rest of the species; the scales of the flower buds are large, yellowish-brown, surrounded with a fringed white border.'

Section 4. *Flowers entirely destitute of glutinous hairs. Stamens short. Corollas bell shaped.*

10. *Azalea sinensis* (A. pontica, *sinensis*, Botanical Register, plate 1253). Leaves downy on both sides, sharp-pointed, glaucous beneath, reflexed and wavy at the edges. Flowers covered externally only with a fine silkiness, their tube much shorter than the bell-shaped limb, the divisions of which are acute.—Introduced from China by Mr. William Wells, of Redleaf, about the year 1826, and supposed to be a native of that country. Its leaves are very like those of *Azalea pontica*, except that they are glaucous underneath, and its flowers are of a bright clear ochry yellow, it is even supposed to be a mere variety of that species. Its bell-shaped corolla, however, without any glandular or other conspicuous hairs on the outside, and with scarcely any tube, distinguishes it sufficiently. The segments of the corolla are broadly ovate, slightly wavy, and the upper one is distinctly dotted in the manner of a rhododendron. This species and the two next will not thrive in England, unless kept in a conservatory, or in a good frame well protected from cold in winter, and from excessive drought in summer.

11. *Azalea indica*, Linnæus. Leaves obovate, flat, green on both sides, and very abundantly clothed with stiffish brown hairs. Flowers quite smooth externally, their tube much shorter than the bell shaped limb, the divisions of which are rounded. Calyx small and very hispid; stamens five.—This and the following are the most beautiful plants which exist in the rich Flora of China, where they far exceed in splendour of appearance the camellias, moutans, chrysanthemums, and roses of that favoured climate. This forms a bush varying in height from two to six feet, with the branches usually drooping, and covered when young with rigid brown hairs. The leaves are deep green, flat, and half evergreen, usually tinged with brown, in consequence of the many brown hairs with which they are clothed. The flowers are large and showy, and gaily marked with brilliant colours. The calyx is very small, and closely covered with stiff hairs. Of the many varieties cultivated by the Chinese, the following are the only kinds that have yet been established in the English gardens: 1. The *Brick-red*, with very rusty leaves, and flowers coloured with orange and dusky red—a splendid variety introduced in the year 1808; 2. The *Double Purple*, with double purplish lilac flowers, not very beautiful; 3. The *Variegated*, with rose-coloured flowers variegated with red and white, and occasionally becoming wholly red; the most beautiful kind of all.

12. *Azalea* [illegible], Hooker. Leaves obovate, flat, evergreen, green on both sides, and clothed with brown hairs. Flowers quite smooth externally; their tube much shorter than the bell-shaped limb, the divisions of which are dilated and wavy. Calyx with leafy acute sepals, stamens ten.—A native of China, and less impatient of cold than the last, from which it chiefly differs in its leafy calyx, evergreen, less rusty, shining leaves, larger flowers, and more numerous stamens. There are two varieties in the gardens, the *White* and the *Royal Purple*, or *Phœnicea*, of which the latter is a most noble object when covered with its large blossoms of the richest Tyrian purple.

For *Azalea procumbens*, see CHAMÆLEDON.

For *A. lapponica* and *fragrans*, see RHODODENDRON.

As the nurseries abound in varieties of all the preceding species of very unequal degrees of beauty, it may be useful to the horticulturist to know that the most remarkable are the following: *A. viscosa* præcox, scabra, pumila, glauca, nitida, *A. nudiflora* rubra, violacea, coccinea (major and minor), staminea, rutilans, variabilis, longiflora, bicolor, pulcherrima, incarnata, blanda, *vittata*, *mirabilis*; *triumphans*, *grandiflora*, *versicolor*, coburgh and papilionacea; *gloria mundi*, *amœnissima*, *chryselectra*, *floribunda*, and *cumulata*. The beauty of all these is, however, far exceeded by that of the *Highclere Scarlet*, or *thyrsiflora* (*Bot. Reg.* t. 1367), a plant which is covered in the spring with long thyrses of the most brilliant crimson flowers.

The foregoing are the nurserymen's names by which the varieties may be purchased. It would be impossible to place them in their respective species with any sort of accuracy.

There exists, moreover, in several collections, a number of most beautiful hybrid kinds, which could not be referred to any of the wild species. They have been chiefly raised at Ghent whence they are known in the nurseries by the name of Ghent Azaleas, or at Highclere, in Hampshire, by the late Lord Caernarvon. Their parents have been usually some deep coloured variety of *A. periclymena* or *calendulacea* on the one hand, and *A. pontica* on the other, the former giving colour and fragrance, the latter size. Some of the finest of them are the following:—the *changeable pontica* or *versicolor*, figured in the *Botanical Register*, plate 1559, the *sparkling* or *scintillans* (*Bot. Reg.* t. 1461); the *Highclere blush*, or *lepida* (*Bot. Reg.* t. 1402), with large white blossoms bordered with rose and stained on one petal with yellow, the *copper-coloured* or *subcuprea* (*Bot. Reg.* t. 1366), and above all, *Lady Harriet Stapleton's* (*Bot. Reg.* 1407), with deep rose-coloured flowers having a crimson tube, and one of the petals stained in the centre with a clear buff colour.

The *cultivation* of azaleas must be divided into that of the hardy and that of the green-house kinds. *Hardy azaleas* succeed perfectly if planted in peat earth mixed with about one third or even one-half loam. They should be sheltered when young by one another, or by rhododendrons, which can be cut away as the azaleas advance in size, for they are natives of swampy situations, where they spring up among the bushes, and are, when young, completely protected from the scorching sun. The dampness of our climate renders it unnecessary to treat them as swamp plants; on the contrary, they succeed nowhere in England better than on the sides of dry hills or on elevated ground; but it is absolutely indispensable that the soil in which they grow should be screened from the sun, either by their own shadow, or by that of other things. Their roots run along just below the surface of the soil, and never force their way downwards more than a few inches, they are of a delicate fibrous texture, and are easily injured. For this reason the best gardeners never allow the soil in which their azaleas grow to be either hoed or raked; it is only hand-weeded, and allowed to become mossy. Every year or two the beds receive a top-dressing of peat and loam, into which the young roots immediately strike from within the old and exhausted soil.

For the green-house azaleas a mode of management essentially the same in principle, but different in application, is required. China, their native country, is subject to a long period of dry or cold weather, where vegetation continues torpid; but during the growing season the air is remarkably mild and moist, with brilliant sunshine. The cultivator must adapt his practice to this natural state of things; by growing the azaleas rapidly when they are growing, and afterwards allowing them to take a long rest. For this purpose he should commence forcing them gradually in a temperature of 50° or 55° during the month of January, keeping them gently moist; in February he

heat should be increased, and as vegetation becomes more active, moisture should be more freely applied along with a very small quantity of liquid manure. This mode of treatment must be persevered in, never allowing the temperature to rise above 75° or 80° at the utmost, until the flowers are expanded; after that has happened the plants should still be kept growing till June or July, when watering should be discontinued, except at intervals, and they should be allowed to sink to rest, in which state they are to remain till the succeeding January, great care being taken that *during the whole of the growing time they are fully exposed to light*, and that as much air as possible is given them. When about to be again called into existence, they should be shifted into new pots of a larger size than before, and supplied with fresh peat and loam; but in doing this the utmost care should be taken of their delicate roots: it is better to wash away any soil that it may be necessary to remove, rather than to break it off in the rude manner too usually practised by gardeners who are ignorant of the principles of the operations which they perform. Managed thus, the Chinese azaleas are beyond all comparison the gayest plants that are grown: less stiff and formal than the camellia, equalling in brilliant colours the South American cacti, and infinitely superior to all of them in their graceful aspect, and mildly odoriferous flowers, it is wonderful that they should not be more extensively cultivated. Those who would see them in their full beauty should, in their flowering season, visit the garden of the London Horticultural Society, or particularly that of Sir Edmund Antrobus, at Cheam, where these gorgeous plants appear in unrivalled magnificence.

Azaleas are usually *propagated* by layers; but they may be increased quite as readily, and at less expense, by cuttings of the young half-grown wood, placed under handglasses in an exhausted cucumber-frame, and struck in river-sand. The principal difficulty under this mode of treatment is to preserve them during the first winter after they become plants, as they are apt to damp off; the only remedy for which is free ventilation, and constant care to remove those which perish.

AZA'NI, an antient town of Phrygia, in Asia Minor, now in ruins. Herodian calls it Æzani, from Æzen, the son of Tantalus, and says that some called it also Azanion. The inhabitants were called Azanitæ, or Æzanitæ. (Stephanus Byzantinus, *de Urbibus.*) Strabo (xii. 576) mentions Azani, Nacoleia, and Kotyaeion (the present Kiutaya) as towns of Phrygia Epictetus. Its situation had been long a matter of doubt, until a few years since, when Mr. Keppel visited its remains, and ascertained from the inscriptions he found there that they belonged to the Azani or Æzani of the antient geographers. It is situated twenty miles S.W. of Kiutaya, on the banks of the river Rhyndacus, on which are two antient bridges. A vast quantity of shafts of columns, beautifully-worked capitals, entablatures, &c., lie scattered on the ground, and the Turkish village of Tjavdéré Hislar has been built entirely out of the ruins. Rows of erect columns are still standing in several places. The finest remains are those of a temple and a theatre. The temple is on a hill, and is 116 feet in length, and 68 in breadth; thirteen out of fifteen pillars on the north side, and five out of eight on the west front, remain standing, and in the highest preservation. Those on the east and south sides are overthrown, but lie close to their original position. They are of the Ionic order; the shafts are fluted, and made each of a single block of marble 28 feet in length. The walls of the temple on the north and west sides are also standing, but the other two sides have fallen. Under the temple is a subterraneous chamber, having an arched stone roof, and of the same extent as the temple itself. The theatre is 232 feet exterior diameter; the stone benches and part of the walls still remain. Some of the Greek inscriptions on the walls of the temple refer to the reign of Hadrian. Numerous coins of Roman emperors and others have been found in this neighbourhood. (G. Keppel's *Journey across the Balkan and into Asia Minor*, London, 1831.)

AZA'RA, DON FELI'Z DE, was born at Barbunales, near Balbastro, or Barbastro, in Aragon, in May, 1746. He received his early education at Huesca, and afterwards studied at the military academy of Barcelona. In 1764 he entered the army, and served as a lieutenant in the expedition against Algiers under O'Reilly, in which he was wounded. He was made a captain in 1776. In 1780 he was sent, with the rank of lieutenant-colonel, as one of the commissioners appointed by Spain to define the limits of its possessions in Paraguay, which had been long a matter of dispute between Spain and Portugal. While there, he undertook the task of making a map of Paraguay, a labour which occupied him for thirteen years. He had to explore vast and wild unknown regions, inhabited by Indian tribes, often hostile, and in the midst of dangers and privations of every kind. Far from being assisted by the Spanish authorities, he was persecuted by them: even his papers were taken from him, he was accused of having a treasonable understanding with the Portuguese, and was subject to numerous vexations from the governor at Assumption, and from the viceroy at Buenos Ayres. Jealousy and ignorance were the origin of these persecutions.

Azara's character, however, stood proof against them, and he rendered some essential services to his government, especially in reconnoitring the coast south of the Rio de la Plata, in the country of the Patagonians. He was recalled to Europe in 1801. He then went to Paris, where his elder brother, Nicolas de Azara, was then ambassador for Spain; and he remained there until his brother's death in January, 1803. Afterwards, Charles IV. king of Spain, called him to Madrid, and appointed him a member of the council for Indian affairs. Azara's travels in South America were published in French at Paris in 1809, and edited by C. A. Walckenaer, to whom the author had intrusted the revision of the work; with notes by G. Cuvier, an atlas, and a life of Azara, 4 vols. 8vo. They contain a description of Paraguay, and of the various Indian tribes scattered through that vast region, their habits and characteristic varieties; with an account of the Spanish discovery and conquest, and of the establishment of the missionary colonies by the Jesuits, and of their singular system of government. The second part of the work consists of a valuable history of the quadrupeds and reptiles of that country, which had been previously published separately in 2 vols. 8vo., Paris, 1801; it was translated into French from the MSS. of the author, by Moreau St. Mery.

AZA'RA, DON JOSE' NICOLAS DE, was born at Barbunales, in 1731. He studied at Salamanca, where he distinguished himself so as to attract the attention of Don Ricardo Val, minister of King Ferdinand VI., who offered him a place in the department of foreign affairs, which Azara accepted. In 1760 he was sent to Rome, as agent for the ecclesiastical affairs of Spain. Don José Monino, known afterwards as the Count of Florida Blanca, who was then Spanish ambassador at the court of Rome, being soon after appointed prime minister of Charles III., was succeeded in the embassy by the Duke Grimaldi, but Azara performed all the real diplomatic business with the papal court. He took an active part in the difficult negotiations concerning the expulsion of the Jesuits from Spain. After Grimaldi's death, Azara was appointed his successor. He enjoyed the full confidence of Pope Pius VI., and had much influence on the Roman politics of that time. Azara was fond of literature and of the arts, and was intimately connected with all the distinguished men who were then in the Roman capital, such as Cardinals de Bernis, Albani, and Borgia; the archæologists Winckelmann, Fea, Marini, and Visconti; the artists Canova, Angelica Kaufmann, Mengs, Volpato, &c.; and the learned Jesuits Arteaga, Andres, Clavigero, and Ortiz. Azara was especially the friend and patron of Mengs. After the death of that artist, he provided for his family; and he wrote a life of the deceased, which he prefixed to a splendid edition of his works, made at his expense by the printer Bodoni. Azara made a valuable collection of antiquities, and he was successful in several excavations near Rome. In 1796, when Bonaparte threatened Rome, Azara repaired to his head-quarters in order to avert the storm, and he succeeded in preventing the advance of the French, though at the price of exorbitant contributions imposed on the Roman state by the conqueror. Azara, after this, felt that his influence with the papal court had declined, and his position became unpleasant. In 1798, when the French took possession of Rome, Azara withdrew to Florence. In 1801 he was appointed ambassador for Spain at Paris. He lost his situation through the intrigues of Godoy, the favourite of King Charles IV., and died in 1803, as he was preparing to set off for Italy to resume his favourite studies.

AZARO'LE. [See CRATÆ'GUS.]

AZERBIJAN, or AZERBAIJAN, also named AZER-

BAIGAN (Ouseley's Ebn Haukal) and ADERBIJAN, is the most western province of the present Persian empire.

According to an observation of Sir William Ouseley (*Travels*, vol. iii. p. 412), Tabriz, the principal town of Azerbijan, was originally called *Azerbâdegân*, from a celebrated fire-temple (*âzer* 'fire, *bâdgân* 'a keeper'), which not only gave this denomination to the place where it stood, but to the whole province; this name has been altered into *Azerbaigân*, and by those who affect to write after the Arabian manner, into *Azerbaijân*. (Compare Hyde, *De Religione Veterum Persarum*, p. 415; Schultens' index to his *Vita Saladini*, &c., art. Adserbeisjana.) We are inclined to think that the name Azerbâdegân, or Azerbijan, is, etymologically, the same with Atropatene, under which designation the country was antiently known as a province of Media. Strabo, indeed, (lib. xi. c. 13,) would make the name Atropatene, a derivative of Atropates, the name of one of its governors; but this explanation seems unlikely to be correct.

Azerbijan is situated between 44° and 49° E. long., and between 37° and 39° N. lat. It is separated in the north from Armenia by the river Araxes, in the east from the table-land of Irak Ajemi and Persia by the Kizil-Ozein; towards the south and west it borders on Kurdistan and Turkish Armenia. The limits of Atropatene are thus defined by Strabo (xi. c. 13): it is situated, he says, towards the east of Armenia and Matiane, towards the west of the Greater Media, and at the same time towards the north of the two latter countries, and towards the south of the nations dwelling around the corner of the Hyrcanian or Caspian Sea. (See Groskurd's note to his German translation of Strabo, t. ii. p. 421.) Nearly the whole country consists of a succession of high mountains, separated by numerous deep valleys, partially cultivated and opening into fertile plains. In the very centre of Azerbijan, between Tabriz and Maragha, are the mountains of Sahend, forming an isolated mass, which rises to the height of 9000 feet above the level of the sea. In a defile in these mountains formed by the river of Sied Abad, near the village of Secunderetch, Colonel Monteith visited and examined a large cave similar to the Grotta del Cane in Italy, and filled with a heavy noxious gas. Towards the east of Tabriz, and in the vicinity of Ardebil, Mount Sevellan attains an elevation of 12,000 or perhaps 13,000 feet. It has the appearance of having been a volcano, though no remains of a crater are now visible. The rocks near the mountain are decidedly volcanic, and all round its base are hot springs. Towards the south-east the high range of the Kaflan-Kuh, a branch of the mountains of Kurdistan, follows the course of the Kizil-Ozein, and in common with that river constitutes the boundary of Azerbijan towards the Persian Irak. In the north, Kinneir mentions the black rocks of the Karabaug. Towards the east of Ardebil, the Talish mountains extend in a direction from north to south, nearly parallel to the shores of the Caspian. The famous, though now abandoned, fortress of Shindan, standing on the summit of an isolated rock, at an elevation of nearly 7000 feet, forms the leading feature of the range.

The principal rivers of Azerbijan are the Araxes and the Kizil-Ozein. [See ARAXES.] The Kizil-Ozein, the Amardus of Ptolemy, and, according to Rennell, the Gozan of Scripture (2 Kings xvii 6; Rennell's *Geography of Herodotus*, 2d edit. vol. i. p. 519, &c.), rises in the mountains of Kurdistan, eight or nine miles from the town of Sinneh or Sennah. It is during part of the year only a shallow and narrow river; but from April to July the melting of the snow renders it passable only where bridges or ferries are established. It runs at first in a northern direction, along the foot of the Kaflan-Kuh, till it approaches the town of Miannah: here it is met by the Garongoo or Karankoo (a river which has its source in the Sahend mountains, westward of Miannah), and then takes its course eastward, forcing its way through a frightful chasm in the Elburz mountains. It is there joined by the Shahrud, a river formed by two streams, the one (the Abhar, Ebher, or Ebbehar) rising in the Elburz mountains, near Teheran, and the other coming from the vicinity of Kazwin. Having reached the lower country of Ghilan, the collective water of these rivers, under the designation of Isperud and Sefid-rud, or the White River (so named from its rapid and foaming course through the mountains), flows with a winding and navigable course to the Caspian Sea, which it reaches near the town of Resht. The road from Ghilan to Hamadan leads through the defile of Rudbar along the side of the chasm through which the Kizil-Ozein descends into the low country, and is described by travellers as surrounded with grand and terrific scenery. (See the view of a bridge over the Kizil-Ozein in Malcolm's *History of Persia*, vol. ii. p. 525.) Another pass over the Ghilan mountains, that of Mosulla, leads through twenty miles of a difficult rugged defile, which Colonel Monteith describes as being infinitely stronger than that of Rudbar. That from Astara over the Talish mountains to Ardebil also is exceedingly steep, stony, and dangerous, though somewhat shorter than the defile of Rudbar: it leads along the Astara river, which now forms the boundary between the Russian and Persian territories.

Besides these two principal rivers of Azerbijan, we must mention the Jagatty, which has its source in the Kaflan-Kuh, runs towards the N.W. and falls into the lake of Urmiah; the Yezdican rises in the mountains between the lakes of Urmiah and Wan, and joins the Araxes; the Agi, which fertilizes the plain around Tabriz, and the Shar, which waters the country around the town of Urmiah, both fall into the lake of that name; and the Kara Soo, or Derra Yurd, which rises in the Sevellan mountains near Ardebil, and falls into the Araxes.

The lake of Urmiah (called *Roumi* by Tavernier, book i. ch. 4, *Rhumi* by Colonel Monteith, *Journal of the Royal Geographical Society*, vol. iii. p. 6, &c., *Derya-i-Armiah* in Ouseley's Ebn Haukal, p. 162) constitutes one of the most remarkable features in the physical character of Azerbijan. Strabo (xi. c. 13, t. ii. p. 450, ed. Tauchn.) describes it under the name of Lake Spauta; he says, that its water is salt; 'the saline particles rise to the surface and crystallize, they cause an itching sensation and gripes, against which oil is a remedy: if garments are washed in the water of the lake, they become corroded, which effect may however be obviated by dipping them into sweet water.' Ebn Haukal also was aware of this peculiarity of the lake: 'its water,' he says, 'is salt and bitter, and contains not any living creature. All round this lake are villages and buildings: from the lake to Maragha is a distance of three farsangs, to Armi (Urmiah) two farsangs. The length of this lake is five days' journey by land; and by water, with a fair wind, a person may traverse it in the space of one night.' Tavernier (*Travels*, book i. ch. 4) observes that the water of the river Aggi-sou, or bitter water, which comes from the mountains in the north and falls into the lake Urmiah, thirteen or fourteen leagues from Tabriz, is of the same quality as that of the lake, both being without any fish. This fact is corroborated by Kinneir, who says that the water of Lake Urmiah is more salt than sea-water, but remarks, at the same time, that it is perfectly clear. The same traveller estimates the circumference of the lake at 80 farsangs or 300 miles. It contains several islands: one of them was made use of as a treasury by the celebrated Tatar conqueror Hulaku.

The climate of Azerbijan is described as healthy. The heat during summer is considerable; the atmosphere is, even during winter, generally very clear, but the cold is intense, and is the more severely felt in consequence of the almost entire want of fuel, dried cow-dung mixed with straw being the only substitute. Nevertheless, few of the inhabitants of either sex put on additional clothing while the cold season lasts; but Sir Robert Ker Porter observes, that at Tabriz scarcely a day passes without one or two persons being found frozen to death in the neighbourhood. The tops of the higher mountains are covered with snow during nine months of the year. Colonel Monteith spent several days in August in the Sahend mountains, during which time he found the thermometer never above sixty, and at night it always froze; the greatest cold was 27° of Fahrenheit. The same traveller observes, that near Lewan, a village situated on the Boamielh river, in an elevated part of the Sahend mountains, the harvest is two months later than in the plain. On the summit of a high peak in the Balkas, a branch of the Kurdistan mountains, at an elevation of from 7500 to 8000 feet above the level of the sea, he saw water frozen at eight o'clock A.M. on the 12th of September, and descending a distance of only forty miles, he came to Yengaga, a fine village, nearly concealed by gardens, in which even pomegranates grow. The high mountains of Ghilan, which bound Azerbijan in the east, are never perfectly free from snow; yet at a distance of only six miles from them, at Durram, in the district of Tahram, Colonel Monteith saw olive-trees cultivated in the garden

of a Persian prince; and at Kullat, in the same neighbourhood, he found walnut and plane trees of gigantic height. Violent hail-storms are common. The soil of Azerbijan, where it is cultivated, is very productive; the best yields from fifty to sixty fold. It is fertilized chiefly by artificial irrigation. The plough is drawn by oxen. Travellers notice the cheapness of provisions, and the pleasing appearance of the gardens and orchards, which abound in delicious fruits of almost every description. In the Koolaboose mountains, which form part of the Kaflan-Kuh, are iron, copper, and lead mines: 'a treasure of riches,' observes Sir Robert Ker Porter, 'which, if properly worked, would fill the coffers of the Persian monarch to overflowing.' (*Travels*, i. 266.) In the same neighbourhood salt-mines are noticed by Colonel Monteith.

The most flourishing part of Azerbijan is that along the northern and western border of the lake of Urmiah, from Tabriz to the confines of Armenia. Here we find the towns of Shebister (or Shebuster), Tasouj, Shar, Selmâs, Khoi, and Urmiah: the three last were already known to Abulfeda (see Schultens' index to his *Vita Saladini*, &c., art. Adserbeijana), who fixes their geographical position. Selmâs, or Selmast, is now a town of about 2000 inhabitants, most of whom are Nestorian Christians. Khoi is described by Kinneir as one of the finest and best-built towns of Persia: its walls are in good repair, the streets are regular, shaded with avenues of trees, and the ceilings of many of the houses are tastefully painted. The town of Urmiah, the supposed birth place of Zoroaster (see Anquetil Duperron, *Zend Avesta*, t. i. part ii. p. 5), is situated on the S.W. side of the lake to which it gives its name: its population is estimated by Kinneir at 12,000 souls.

Maragha, a town of about 15,000 inhabitants, is situated in a low valley, at the extremity of a well cultivated plain opening to the lake, from the east side of which Maragha is distant eight or nine miles. The place is famous in Oriental geography for the observatory of the celebrated astronomer Nasireddin (born A.D. 1200, died 1273), erected under the auspices of Hulaku, who, after putting an end to the caliphat of the Abbasides, at Bagdad, fixed his residence at Maragha (A.D. 1260). Ruins of this observatory still exist on a hill near Maragha; and close by, on the western brow of the hill, there is a curious excavation, forty one feet in length and sixteen in breadth, and similar in many respects to the caves of Elephanta and Salsette, in India. Of the time when it was made, as well as of the purpose for which it was intended, we are utterly ignorant.

The principal town of Azerbijan is Tabriz—(situated, according to Browne, in 38° 4′ lat., 46° 35′ long.; see Ker Porter's *Travels*, i. 220; according to a number of observations made by Colonel Monteith, long. 46° 8′ 30″, lat. 38° 3′ 59″; see *Journal of the Royal Geographical Society*, iii. 57). The number of its inhabitants is at present about 30,000; but the extent of its ruins, which towards the east continue to a distance of three miles beyond the actual circumference of the inhabited town, shows that it formerly was much more populous. Chardin, in 1686, estimated its population at 500,000 souls, which is perhaps exaggerated. Its situation, near the confines of the Persian and Turkish dominions, sufficiently accounts for its present desolated condition, as the town has been subject to frequent conquests and devastations. It has, moreover, repeatedly and most severely suffered from earthquakes; in that of 1727, 70,000 persons are said to have perished; and in a subsequent one, 40,000. A slight shock of an earthquake occurred at Tabriz when Sir Robert Ker Porter was there, in March, 1818. Whether, according to a prevailing tradition, Tabriz was founded by Zobaidah, the wife of Harun al-Rashid, remains doubtful, although it is certain that it was a favourite residence of that caliph. D'Anville and Sir William Ouseley (*Travels*, iii. 410) appear inclined to attribute much greater antiquity to Tabriz, by supposing it to be identical with the town of Gabris (or Tabris), mentioned twice by Ptolemy (vi. c. 2), though with different degrees of latitude and longitude.

Miannah (also called Mianeh or Mianej) is situated in a long and winding valley on the western side of the Kaflan-Kuh. It was nearly ruined by the Russians in their late invasion of Persia, and is now a miserable village. It is infested by a poisonous insect, named *milleh*, the sting of which is described as very dangerous. The road from Miannah to Tabriz leads over an extensive plain, called the plain of Aujan. In this plain, about six miles west of the village of Tikmedash, there is an eminence, where, on both sides of the road, are many large and upright hewn stones, arranged in lines; one row, on the right hand (coming from Miannah), appeared to Sir William Ouseley to have formed part of a circle now imperfect. These stones had already been observed by Chardin (t. iii. p. 13, Rouen edition of 1723): Mannert (vol. v. part ii. p. 102) is inclined to consider them as marking the situation of the antient town of Gaza, Gazæ, or Gazaca.

The ruins now called Kalah Zohak (*i. e.* the castle of Zohak, a tyrant celebrated in the early fabulous history of Persia), situated on a precipitous rock near the river Ka rangoo, are supposed by Colonel Monteith to be the remains of the antient Atropatana. Near Lylau, in a fertile plain irrigated by the river Jagatty, the same traveller saw the ruins of a large town, about fourteen miles in circumference, which he, differing from Mannert, is inclined to consider as the antient Gazaca; and on the top of a steep and rugged mountain, near the valley of the Shahrud (the southern branch of the Kizil-Ozein), he visited the remains of the residence of the chief of the Assassins, or Old Man of the Mountains.

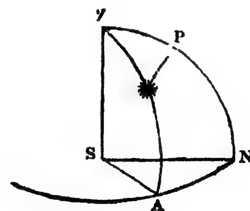
The town of Ardebil has already been briefly noticed in a separate article. It is situated at the eastern descent of the high Sevellan mountains. Towards the north of the town there is a fertile plain with excellent pastures, but infested, it is said, by a dangerous species of snake. It spreads as far as the mouth of the Araxes, to an extent of sixty farsangs in length and twenty in width. It is named Chowal Mogam—(*i. e.* the plain of Mogam).

The mountainous country to the west of Urmiah and Selmast is inhabited by a race of Christians of a singularly savage and ferocious character. They are said to be the remains of the numerous Christian population which inhabited this province in the times of the Greek emperors, and who retired into these mountains from the persecution of the Mohammedan conquerors. Of their institutions we know little, for they live exclusively among themselves, and allow no stranger to enter their territory. They consist of four tribes, and are under the rule of a prelate, whose dignity is hereditary in the family, although the chief himself is not allowed to marry. The family name of the present prelate is Marchimoon. He keeps up a sort of alliance with one Mustapha Khan Hukaroo, a Kurdish chief, but owns no allegiance, either to the King of Persia, or to any other of the surrounding powers.

(See Kinneir's *Geographical Memoir of the Persian Empire*, p. 148-158; Sir William Ouseley's *Travels*, t. iii. p. 389-426; Sir Robert Ker Porter's *Travels*, t. i. p. 216, 270; Colonel Monteith's *Tour through Azerbijan*; *Journal of the Royal Geographical Society*, vol. iii. p. 1, &c. Frazer's *Travels on the Southern Banks of the Caspian Sea*.)

A'ZIMUTH, a corrupted Arabic word, which when properly written is *as-samt*, the *as* being the article *al*, assimilated to the initial letter of the word to which it is prefixed: *samt* means 'a way, a road, a path;' also 'a part, tract, country or quarter.'

Azimuth denotes the angular distance of the horizontal point which is directly under a star from the north point of



the horizon. Thus if S be the spectator, Z his zenith, Z N his meridian, N A the horizon, and Z A the vertical circle passing through a star *, then the angle A S N is the star's azimuth, or it is the angle made by the vertical circle Z A and the meridian Z N.

The only instruments in use by which the azimuth could be immediately observed are the theodolite and the altitude and azimuth circle. [See THEODOLITE, CIRCLE.] It is not one of those elements which are usually measured in astronomy. When the star is known (that is, when its declination is known), the azimuth can be found by observing the altitude A* and solving a spherical triangle; for in the triangle whose

sides are the complements of the star's altitude, the star's declination, and the latitude of the place, the azimuth is the angle opposite to the complement of the declination, as may be seen in the triangle Z P *, where P is the pole. Similarly the latitude of the place may be found when the altitude and azimuth of a known star are observed at the same moment. For in the triangle just mentioned, Z* and *P are given, and the angle *Z P; whence Z P may be calculated. When the azimuth of a star is found by means of an instrument adjusted by the magnetic needle, then the azimuth obtained (which needs a correction on account of the deviation of the needle) is termed the *magnetic azimuth*. In this way the deviation of the needle may be found at any known place by observing the magnetic azimuth and calculating the true azimuth by observing the altitude of a star in the manner before described.

An instrument is said to be moved in *azimuth* when it is turned on a vertical axis, so that any line in it drawn through the axis points to the same altitude in the heavens, but not to the same azimuth. Similarly an instrument is moved in *altitude* when it is turned on a horizontal axis. An altitude and azimuth instrument is one which admits of both motions.

It is hardly necessary to observe that when the star is in the horizon, and when the azimuth is less than 90°, (90° — azimuth) is the amplitude (which see); and that when the azimuth is greater than 90°, (azimuth — 90°) is the amplitude.

An *azimuth circle* is a circle all the points of which have the same azimuth, that is, a vertical circle. For azimuth COMPASS, azimuth DIAL, see those words.

AZINCOURT. [See AGINCOURT.]

AZINE'PHORA, in entomology, a genus of the order lepidoptera and family geometridæ.

AZOF, THE SEA OF, is commonly considered as a part of the Black Sea; but being a close sea, united to the Black Sea by a narrow strait of considerable length, and differing from it in many peculiar features, it is rather to be considered as an independent piece of water.

This sea extends from the eastern shores of the Peninsula of Crimea in an east-north-east direction to the embouchure of the river Don. If the outlet of the Don, and the most western creek formed by the Putrid Sea, near Perekop, on the Isthmus of Crimea, are considered as its two extremities, it extends from west to east over 5° 20′ long. from 33° 40′ to 39° East of Greenwich. Its whole length, therefore, is upwards of 200 miles. From south to north it extends over about 2° of lat., from 45° 20 to 47° 20′, but its breadth varies in different places. The north-eastern portion of it is a long bay, which may be called the Bay of Taganrog: it extends in length from the mouth of the Don to the low and sandy Capes Dolgava and Bielosoroiskaja, about 70 or 80 miles, with an average breadth of scarcely fifteen. The main body of the sea, which lies to the west-south-west of this bay, may extend to somewhat more than 100 miles from east to west, with an average breadth of 80 miles from north to south. This sea covers a surface of upwards of 14,000 square miles, and is more than half of Ireland, and double the Lake of Ladoga, in area.

The Russians call it More Asowskoe (the Sea of Azof): among the Romans it was known by the name of Palus Mæotis, who derived this name from the Greeks, by whom it was denominated Limne Maietis, or Maiotis, that is, the Lake Mæotis. This name is more appropriate than that of sea; for this sheet of water is a lake, and a shallow lake too. In the centre of the main body, where the depth is greatest, in a few places it is seven fathoms and a half, but on an average only between six and seven; and this depth continues to the Strait of Yenikalé, by which it is united with the Black Sea. Towards all the other shores, its depth decreases to five fathoms, and even four and a half. The Bay of Taganrog is much shallower: at its entrance, the depth of water does not exceed five fathoms, and it decreases rapidly towards the east, so that opposite the town of Taganrog it is not more than two fathoms, and near the mouth of the Don only four feet. No vessel drawing more than twelve feet can navigate this bay, and even those of less draught are obliged to take in their cargoes at a distance of four or five miles from Taganrog. The shallowness of the bay opposite this town is such, that with north-easterly winds there is not a depth of more than two or three feet for about one mile and a half, so that the carts are obliged to be drawn that distance by horses in order to load the lighters, which cannot approach nearer the shore. With strong south-westerly winds the depth is much increased, and the difference is said sometimes to amount to seven feet. In spite of such disadvantages, the commerce of this sea is not inconsiderable. it being the only channel by which the inhabitants of the eastern provinces of southern Russia are able to convey their products to the great markets of the world, and by which they can obtain those of other countries.

The shallowness of this sea was well known to the Greeks; and it was the prevailing opinion in the time of Aristotle that it was rapidly filling up by the earthy matter brought down by the rivers which discharge into it. The same opinion has been maintained by some modern travellers; but we do not possess data by which this question can be decided, as we have yet no means of comparing the state of this lake at different and remote epochs. (See Aristotle, *Meteorologica*, i. 14; also Polyb. *Hist.* iv. 42.)

The bottom of the sea is partly swampy, but mostly sandy. Its waters are drinkable, but have always a disagreeable flavour; after south-westerly winds have prevailed for a time, it becomes brackish by being mixed with the water of the Black Sea, which then enters through the Strait of Yenikale. It is usually frozen every year from November to the beginning of March. This is partly to be attributed to the floating ice which descends the Don, but still more to the shallowness of the sea and to the freshness of its water.

There is perhaps no equal extent of water on the whole surface of the globe which abounds in fish so much as this sea. The most important fisheries are along the southern coast, between Cape Dolgava and the Strait of Yenikalé, where great numbers of sturgeons and sterlets (*Sturio ruthenus*) are taken, and great quantities of caviar and isinglass are prepared. The belugas (*Sturio huso*) also abound here as well as in the Strait of Yenikalé, but they are generally not so large, nor in such numbers, as in the Caspian Sea, near Astrakhan. Near the mouth of the Don a small kind of *Cyprinus ballerus*, called by the natives Singa, is caught. These fish are so numerous, that from forty to seventy thousand are often taken in one net. They are sent into the interior, and consumed during the frequent fasting-days of the Greek Church.

The most western part of the Sea of Azof, which was named the Putrid Sea by the Greeks, and by the Russians Siwash, is separated from the main body by a narrow, sandy stripe of low land, which, at its northern extremity, leaves a narrow opening as a channel of communication with the sea itself. By this opening the Siwash receives, when the wind is easterly, the waters of the Sea of Azof, but at all other times its surface exhibits nothing but swamps and quagmires, equally impassable to men and animals. It is a mere nuisance, and the noxious exhalations which rise from it render the adjacent country for several miles unhealthy and nearly uninhabitable. (Compare Strabo's description.)

The strait which unites the Sea of Azof with the Black Sea was called by the Greeks the Cimmerian Bosphorus, and is now commonly named the Strait of Yenikalé, from a small fortress built on its northern entrance; it is sometimes also called the Strait of Kaffa, from a once rich and flourishing town, which lies at some distance from its southern entrance, on the shores of the Peninsula of Crimea. This strait is about ten miles and a half long, and at the narrowest parts nearly four miles broad; but the navigable channel does not exceed a mile. Its entrances are shallow and extremely intricate, with a depth of water seldom exceeding twelve feet. On each side it is lined by low sandy hills, and is frequently frozen over, though the water is always brackish.

The country surrounding this sea indicates its true character, and shows that it is one of those lakes which are designated by the name of steppe-lakes, and that it ought to be compared with the northern part of the Caspian Sea and with the Sea of Aral. To the north of the Sea of Azof extends the desert which is known under the name of the Steppe of Nogai, and which continues farther to the east under the denomination of the Steppe of the Cossacks, until it reaches the Great Desert, which extends from the foot of the Caucasus to the Ural, and farther eastward to the Altai Mountains. The immediate shores of the sea on the north in all their extent, and on the south up to Cape Dolgava, are commonly formed by a narrow and low belt of sand, and even Capes Fedolowa, Visarinawa, Berdianskaia, Bielosoroiskaja, and Dolgava are low and sandy; but, behind this

low strip the higher shores rise from 30 to 40 feet, and are composed of calcareous and marly strata. Sometimes they advance close upon the sea, as in the case of the cliffs on which the towns of Taganrog and Azof stand. The coast from the south of Dolgava to the Strait of Yenikalé exhibits a different character. Though the interior of the country presents the same monotonous aspect as the other steppes, the low shores are here much broader, and extend some miles into the interior. They have not a sandy soil, but are marshy, and sometimes a part of them is covered by the water of the sea. But as the bottom of the sea along this marshy tract is swampy, it is very productive in fish, and the whole coast is lined with the huts of the fishermen. In this low, marshy country pelicans in great numbers were observed by Bishop Heber.

The two peninsulas which, projecting respectively from the European and Asiatic continents, form the Strait of Yenikalé, have some peculiarities: that to the east of the strait is a part of the island of Taman [see KUBAN], and consists of small strips of low land, which separate several salt-lakes of considerable extent from one another; these salt-lakes occupy the greater part of its surface. The peninsula to the west of the strait, which is now called the Peninsula of Kertsch, from the town of that name, and once formed a part of the Grecian Taurica Chersonesus, exhibits, at some distance from the shore, a range of high land, which rises to 500 feet and upwards; but on its northern low shores it likewise has salt-lakes. On both peninsulas numerous springs of petroleum are found, to which Pallas attributes the mud volcanos which exist here.

The uninhabited shores of the Siwash are low, and the land above them is a dreary steppe.

No considerable place is situated on the shores of the Sea of Azof, except Taganrog. On the Strait of Yenikalé stands the town of Kertsch, which is considered as having been the residence of the great Mithridates of Pontus in the latter unhappy part of his life. [See KERTSCH.] (Pallas; Captain Jones; Rennell's *Atlas of Western Asia*; Strabo, Casaub. p. 308, &c.)

AZOF, or AZOV, called by the Turks Assak, a town of southern Russia, and once a fortress of great celebrity, gives its name to the adjacent gulf of the Black Sea: it is situated on an eminence, washed by one of the principal arms of the Don, at a distance of 20 miles from its mouth, and 360 miles to the south-east of Ekaterinoslaf, the capital of the Russian province to which it belongs. In antient times it was known to the Greeks under the name of Tanais; and in the twelfth century was under the dominion of the Poloftzian princes, from whom it was wrested by the Genoese in the thirteenth: the Genoese, who called it Tana, were driven out of it by Timur-leng, in 1392. Azof and its domain fell into the possession of the khans of the Crimea; and eighty years afterwards were reduced by the Ottomans. The obstinate contests for this important post, which took place between the Turks and Russians in the seventeenth and eighteenth centuries, terminated in its cession to the Russians in the year 1774. It has now lost all traces of its former importance; the town is become a cluster of filthy, miserable cabins, its fortifications are gone to decay, the branch of the river is choked with sand, and its once busy port has sunk into a deserted haven. The only attraction which it possesses at the present day is a fine and extensive prospect of the surrounding country, as far as the opposite coast of Taganrog, and the prominent point of the Chumburskaja foreland on the Asiatic shore.

Strabo (p. 493) says, that Tanais was a colony of Greeks from the neighbouring Bosporus: it was ruined by Polemon before the time of the Greek geographer. Strabo also describes it as being at one time the common market of the European and Asiatic Nomadic tribes of this part of the world: the barbarians gave slaves and skins in exchange for articles of dress, wine, and other commodities, the products of civilization.

AZORES, or WESTERN ISLANDS, are situated in the North Atlantic, about 795 miles from the west coast of Portugal. They consist of nine islands in three distinct groups, lying in the direction of W.N.W. and E.S.E., and extending about 330 miles. The north-western group contains the small islands of Corvo and Flores, distant about 114 miles from the central group, which includes Terceira, St. George, Pico, Fayal, and Graciosa. The third group, 69 miles to the S.E. of the second, is composed of the two islands of St. Michael and St. Mary, and the Formigas Rocks. Doubts still exist with regard to a small island seen by Pimento, the Portuguese navigator, who calls it Topo: it is supposed to be about four miles north of the S.E. point of St. George (Ponto de Topo), and to be about seven or eight miles in circumference. This island is not laid down in our present charts, but is said to have been seen by an English ship of late years.

The Azores have sometimes been called the Terceiras, from the name of that island; by some geographers they have been classed among the African islands, though there can be no doubt that they belong more properly to Europe, from their latitude and proximity to that continent.

[From the Admiralty Chart.]

The history of these islands is obscure, and the exact date of their discovery uncertain: they appear, however, to have been discovered about the middle of the fifteenth century (Behman says in 1431) by Joshua Vanderberg of Bruges, who in a voyage to Lisbon was driven thus far to the westward by stress of weather. Boasting of his discovery on his arrival at Lisbon, the Portuguese government immediately fitted out an expedition and took pos-

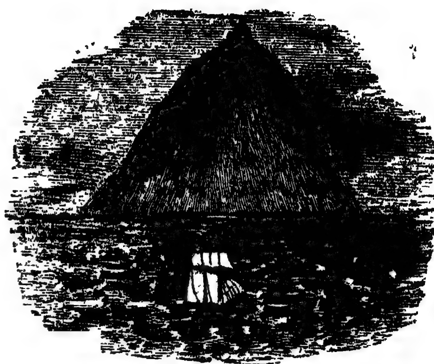
session of these islands, to which they gave the name of Açores, from the number of hawks or falcons found on them; the Portuguese word *Açor* (Latin, *Accipiter*) signifying a bird of prey or hawk. They were then entirely destitute of inhabitants, and of every animal except birds, which were numerous and of various species. So much importance was attached to the acquisition of these islands, that in 1449 the great Don Henry, prince of Portugal, proceeded there in person to take a more formal possession. In 1466 they were given by Alphonso V. to his sister the duchess of Burgundy, and colonized by Flemings, who, however, appear always to have recognized the authority of the king of Portugal. They fell under the dominion of Spain when Philip I. seized the vacant throne of Portugal in 1580, and continued so till the restoration of the house of Braganza in 1640; since which time they have remained in undisturbed possession of the Portuguese.

All the islands are of volcanic origin. Though there is no visible volcano now in operation, the effects of internal heat and disturbance are seen not only in the caldeiras, or fountains of boiling water that exist in many parts, but in the frequent and disastrous earthquakes to which the islands are subject. The most formidable on record occurred in 1591; it continued twelve days without intermission, and entirely destroyed the flourishing town of Villa Franca in the island of St. Michael. The last eruption that took place was in 1808, in the island of St. George: on the 1st of May a dreadful volcano burst out, and a large crater, rising to the height of about 3500 feet, was formed in the centre of the island, amidst fertile pastures; it continued raging with terrific fury till the evening of the 2nd, when a second small crater was opened, and subsequently from twelve to fifteen others. On the 5th its force began to fail; and a few days afterwards it ceased entirely. Although it had given timely warning, yet about sixty persons lost their lives, and numbers of cattle were destroyed. The lava inundated and swept away the town of Ursulina, with many cottages, farms, and country-houses; and this beautiful island, before rich in cattle, corn, and wine, became a scene of ruin and desolation.

There are also instances of the more extraordinary phenomena of submarine volcanoes, throwing up rocks and islands from the bottom of the ocean. The first on record is that mentioned by Kircher in 1538; another in 1720; and in 1811 a volcano burst forth off the west end of St. Michael, throwing up from the depth of forty fathoms a very dangerous shoal. This took place in February; on the 18th of June, after raging several days, and ejecting ashes, cinders, and stones, the crater made its appearance above the surface of the water, increasing so rapidly, that in two days it had attained the height of 150 feet, and ultimately to near 300 feet, forming an island about a mile in circumference. Subsequently it sunk gradually into the sea, and by the middle of October in the same year no part of it was visible above water, but a dangerous shoal still remains.

The soil, which is formed entirely of volcanic substances, is very prolific: the lava districts are cultivated with vines, oranges, and lemons; but where decomposition has afforded richer land, it yields wheat, Indian corn, beans, &c. Both European and tropical fruits arrive at the greatest perfection; and the face of the earth is so diversified, as in many places to exhibit within a small extent gardens of aromatic flowers, pastures, vineyards, orangeries, &c. The islands, though still abounding in uncultivated lands, produce much more than sufficient for the supply of their present population, not only of the necessaries, but also of the luxuries of life. Vessels touching at any of them are certain of being able to procure an abundant stock of refreshments; and the cattle are equal to any in the world. During the period of Spanish possession, the Azores were very much frequented by the fleets both in going to and returning from their American colonies; and were the scene of many gallant exploits by Raleigh, Howard, and other British commanders.

The general character of the islands is mountainous, of a conical form, and great bulk. The most remarkable among them is the Peak of Pico; the annexed is a sketch of the island (as seen six or seven leagues from the westward), which takes its name from that singular elevation. The small sugar-loaf on its summit is so very regular as to appear the work of art. The height has been variously computed, by the French at 7032, and by the Spaniards at 6618



English feet. The sides of this mountain produce the finest wines, which, though inferior to Madeira, being much cheaper, find a good market both in Europe and America.

On approaching the islands the aspect is unpromising, from the barren appearance of the mountains and the steep rocky coasts, which nearly everywhere present high and craggy cliffs; but a nearer view exhibits a most luxuriant landscape of vineyards and corn-fields, interspersed with orange and lemon orchards, and open pastures bounded by woods.

St. Michael is the largest island, and the residence of the bishop; but Angra, in Terceira, is considered the capital of the group, and the seat of the civil government. Terceira itself is one of the least fertile, and is often supplied from the neighbouring islands; from the nature of its coasts it may be deemed almost impregnable, every accessible point being defended by batteries.

Among all the Azores there is not one good port for vessels of burden, all the anchorages being in open bays or roads, from which ships are often obliged to put to sea at a very short notice. The channels among the islands are clear and deep, but strong currents set through them, and the Florida or Gulf Stream is at times sensibly felt here. From the nature of the land, vessels are subject to sudden calms, squalls, and eddy winds by approaching too close to the shore.

The trade of the Azores was formerly a monopoly of Portugal, but it has been thrown open to other countries, whence woollens, hardware, boards, staves, pitch, tar, iron, &c., are imported; in return for which wine and fruit are the chief payments. From the mother country the payment of its imports consisted principally in dispensations, indulgences, images of saints, sacred relics, &c.

The climate is mild and pure. A residence in these islands has often been recommended to those afflicted with pulmonary complaints, as they have a more equable temperature than continental regions. The winter, though attended with heavy storms, is not severe, nor are the heats of summer oppressive, surrounded as these islands are by such an expanse of ocean. The Portuguese settlers naturally introduced their own religion, manners, and customs, which their almost undisturbed possession, and a similarity of climate to that of their own country, have contributed to maintain. Regularly built towns, handsome churches, large convents and monasteries, and the prevalence of whitewashing their buildings, are the same features as are found in Portugal. The population of the islands is computed to be under 200,000 souls.

Among the Azores the rise of tide varies from 4½ to 7 feet, but it is much affected by the prevailing winds; the flood sets to the eastward.

About sixteen miles to the N.E. of St. Mary are seven or eight small rocks, occupying a space of nearly a mile; they are called the Formigas, or Ants; the highest of them is about forty feet above the sea, and they rise so abruptly, that within thirty yards of them there is no bottom with fifty fathoms. Another patch of rocks, of about the same extent, but only just above the water's edge, lies nine or ten miles to the N.E. of the Formigas, called Tulloch's Rocks.

The geographical position of the group is included between the parallels of 36° 57′ and 39° 45′ N. lat., and the meridians of 24° 55′ and 31° 15′ W. long. The several islands will be described under their separate names.

A'ZOTE, or AZO'TIC GAS, from *a privative*, and *ζωή* life, signifies 'destructive of life;' it is frequently called

nitrogen, or *nitrogen gas*, as being one of the constituents of nitric acid. Dr. Rutherford, of Edinburgh, recognized this as a peculiar substance, in his thesis *De Aëre Mephitico*, published in 1772, but he mentioned only a few of its properties, and gave it no name. Dr Priestley procured it about the same period, and described several of its qualities in the *Philosophical Transactions* for 1772; he afterwards called it *phlogisticated air*. The priority of discovery is generally awarded to Dr Rutherford; but it would perhaps be difficult to establish his claim to it.

This gas may be obtained by several processes. Dr Rutherford separated it from the oxygen gas, with which it forms atmospheric air, by repeatedly breathing the same portion of atmospheric air, and agitating it afterwards with a solution of caustic alkali; this absorbed the carbonic acid formed during respiration, and left the azotic gas unacted upon.

Dr Priestley procured azotic gas by exposing a given volume of atmospheric air to a mixture of sulphur and iron filings; by this the oxygen was absorbed, and the azotic gas left; he also prepared it by some other means.

We shall give, first, the readiest method of obtaining this gas, and then state its properties. Put a small piece of phosphorus on a cork floating on water, and set fire to it; while burning hold inverted over it, and dipping a little into the water, a glass jar or wide-mouthed bottle containing atmospheric air; during combustion the phosphorus unites with the oxygen of the air to form phosphoric acid, but having no affinity for the azotic gas that remains, and is nearly in a pure state, when it has either stood over the water or been agitated with it until all the white vapour of phosphoric acid has disappeared.

Azotic gas thus obtained, or by other methods which we shall point out, has the following properties: it is transparent, colourless, inodorous, and insipid. It is lighter than atmospheric air, which being reckoned 1, the specific gravity of azotic gas is stated as follows by the authors named: Biot and Arago, 0.969; Dr Thomson, 0.972; Berzelius, 0.976; and assuming that at 60° Fahrenheit, and with 30 inches of barometrical pressure, 100 cubic inches of atmospheric air weigh 31 grains, an equal volume of azotic gas will weigh, according to the above specific gravities, and in the order given, 30.04 grains, very nearly 30.13 grains, and 30.25 grains. The refractive power of this gas is stated to be to that of atmospheric air as 1.03408 to 1. Its specific heat, according to Berzelius, is to that of an equal weight of atmospheric air as 1.0247 to 1; but chemists are not agreed on this difficult subject.

Azote is generally considered as an electro-positive element, and in voltaic combinations, as attracted to, or evolved from, the negative surface. Mr Faraday has, however, lately found, that according to the nature of the substance decomposed, azote may appear at either pole; but he concludes, that when it is evolved at the negative one, it is a primary result, and when at the positive a secondary one.

Water dissolves but a very small quantity of this gas; according to Dr Henry, 100 cubic inches take up only 1.47 cubic inches of the gas; Dr Dalton states it to be 2.5, and Saussure 4.1 cubic inches. It is fatal to animals when respired by itself, as implied by the term *azote*; it extinguishes flame immediately; no degree of cold and pressure to which this gas has been subjected has condensed it to a fluid form.

Azote resembles all other elementary bodies in being destitute of acid or alkaline powers; its affinity for substances, both elementary and compound, appears to be extremely weak, there being no one with which it combines by mere mixture, or by the action of heat under common circumstances. By electricity, however, and perhaps by the intense heat which it excites, it may be made to combine with oxygen, and the result is nitric acid; the experiment was first made by Dr Priestley, but the true nature of the action, and the result of it, was ascertained by Mr Cavendish. [See NITRIC ACID.]

Although the properties of azote are rather of a negative than a positive description, and although its affinities are weak, yet it enters into the composition of a great number of important compounds. Thus it constitutes from [illegible] to [illegible] of the volume of atmospheric air; this, however, may be regarded rather as a mixture than as a chemical compound of oxygen and azotic gases; but with oxygen it forms five definite compounds, viz., nitrous oxide, nitric oxide, nitrous acid, hyponitrous acid, and nitric acid (which see). With hydrogen it constitutes the alkali ammonia, already described; with chlorine and iodine it gives rise to detonating compounds; with carbon it forms cyanogen; and with phosphorus a phosphuret; but it is at least questionable whether it combines with the other non-metallic elements, or with any of the metals. It enters into the composition of most animal matter except fat and bone; and though not a constituent of the vegetable acids, it forms a part of most of the vegetable alkalies.

Azote by itself is fatal to animals, yet it is a most important constituent of the air, as serving to moderate the action of oxygen during combustion, and the too great excitement which that gas respired unmixed would produce on the animal system. It appears also from the experiments of Magendie that animals will not live on food that contains no azote.

Although azote has not been decomposed, it is strongly suspected to be a compound body; and various facts have been cited in support of this opinion: thus when mercury is negatively electrified in a solution of ammonia, the metal increases in volume and becomes a soft solid, which was supposed by Davy to be derived from the formation of an amalgam between the mercury and a metal furnished by the azote of the decomposed ammonia; when, however, this amalgam is no longer under electrical influence, it decomposes, hydrogen, ammonia, and mercury being produced. Davy further imagined that these changes were occasioned by the decomposition of water, the oxygen of which reproduced azote by combining with the supposed metal, and that one portion of the hydrogen formed ammonia by uniting with the azote, while the remainder was evolved in the gaseous state. According, however, to Gay Lussac and Thenard, these effects are produced even when water is not present, and they consider the amalgam as a compound of mercury, azote, and hydrogen, the last element being combined with less azote than in ammonia. Professor Daniell refers the apparent amalgamation to the communication of an adhesive attraction to the particles of the metal by the electrical action, by which the particles of liquid and aeriform bodies are entangled and retained, a kind of frothy compound being formed, and the fluidity of the mercury destroyed. (*Journal of the Royal Institution*, vol. xxx. p. 12.) Berzelius also supposes that azote is a compound; and although his views on the subject are extremely ingenious, they cannot be considered as conclusive. Davy attempted, but in vain, its decomposition by means of the action of potassium and the voltaic battery.

The following experiment, related among others by Mr Faraday, is strongly in favour of the compound nature of azote, although the author confesses that he is not satisfied on the subject. An empty tube was filled with hydrogen gas, and zinc foil and a piece of hydrate of potash were put into it. It is evident that the only elements present were zinc and potassium, with oxygen and hydrogen, forming the water of the hydrate of potash; and yet on the application of heat ammonia was evolved, as indicated by its action on moistened turmeric paper, placed in the upper part of the tube. In this experiment, then, ammonia, which is well known to yield azote by its decomposition, appears to have been formed without its presence; and if so, the azote must have been derived from the combination of some of the elements enumerated. At present, however, and until further experiments have elucidated the subject, we must continue to regard azote as an undecomposed body, and to class it among the elements.

We shall now state various other modes of procuring azotic gas from atmospheric air, in addition to those already mentioned; and we shall conclude with noticing its production by the decomposition of some chemical compounds.

It may be separated from atmospheric air by the slow combustion, as it is termed, of phosphorus; that is, by merely exposing a stick of phosphorus, supported by a wire, in a bottle of air inverted over water.

By the exposure of moistened iron filings, or iron burnings, to air in a bottle inverted over water, the metal oxidizes, and the azotic gas is left; this acts even more slowly than the phosphorus in the above experiment.

By the agitation of mercury and lead in a corked bottle, for a few minutes, a black powder is formed, which is probably a mixture of an oxide of lead with finely-divided mercury; azotic gas is left.

The passing of atmospheric air repeatedly over iron, or some other metals, heated to redness in a tube.

The exposure of air to a solution of sulphuret of lime, or of sulphuret of potash in water: this operation is rather slow.

By mixing over water 100 measures of air and 80 measures of nitric oxide gas, nitric acid is formed and absorbed, and about 80 volumes of azotic gas remain nearly pure.

By mixing 100 measures of atmospheric air with 42 measures of hydrogen gas over water, and passing the electric spark through the mixture, about 80 measures of nearly pure azotic gas are left.

By passing electric shocks repeatedly through atmospheric air confined in a tube, over a solution of potash, nitric acid is formed and absorbed, and azotic gas is left: the operation is extremely slow. [See NITRIC ACID.]

Azotic gas may also be obtained by decomposing ammoniacal gas by means of chlorine gas; nitrous oxide gas by hydrogen and the electric spark; nitric oxide gas by the action of potassium; by the decomposition of nitrate of ammonia with zinc; this last experiment requires certain precautions. (Silliman's *Journal*, vol. xviii. p. 258.)

Lastly, when flesh is heated in a retort with diluted nitric acid, azotic gas is also obtained; but whether it is derived from the animal matter or from the acid, has not been satisfactorily ascertained.

AZO'TUS. [See ASHDOD.]

AZTECS is the name of a tribe who settled last in that part of America now called Mexico, or New Spain. They were living as a tribe about the year 1160 of our æra, in Aztlan, a country situated to the north of the Gulf of California. A man of great influence in the tribe, named Huitziton, availed himself, as it is said, of the chirping of a bird to persuade the men to leave their native abode. Having crossed the Rio Colorado, or Red River, at a point beyond 35° N. lat., they proceeded south-eastward to the river Gila, where they lived for some time, as appears from the ruins of certain antient buildings found on the banks of that river. After dwelling in several places, they arrived at Hueicolhuacan, or Culiacan, 24° 54′ N. lat., 108° 1′ W. long. Here they remained three years, reformed their calendar, and constructed a wooden image of their god Huitzilopochtli. In 1196 they arrived at Tula. From this place they removed, in 1216, to Zumpanco, in the valley, where afterwards the city of Mexico was founded. They were kindly received by the chief of that place, Tochpanecatl; and after wandering some years about the lake of Tezcuco, they finally settled at Acocolco, a group of islands in the southern extremity of the lake. The chief of Colhuacan waged war against them, and in 1314 reduced them to slavery. In this wretched state they lived for nearly half a century at Tizapan. A service which the Aztecs rendered to their masters in a war between the Colhuacanians and the Xochimilchians was the means of procuring them their liberty. Clavigero says (tom. i. p. 166) that, after the battle, the Aztecs asked their masters for some victim to offer to their god, and that they were presented with a dead bird, wrapped up in a piece of coarse stuff. During the night the Aztec priests removed this mean offering from the altar, and placed instead of it some odoriferous plants, and a knife of itzli or obsidian. On the following morning they invited the Colhuacanians to the festival, and bringing out four prisoners whom they had concealed, the priests sacrificed them in the horrid manner ever afterwards practised by the Aztecs. The Colhuacanians, horror-struck at this scene of blood, ordered this cruel tribe to remove from their territory. The Aztecs then fixed their abode in Acatzitzintlan, but wishing to separate themselves still further from their masters, proceeded to Yztacalco, a group of islands, which were situated in the western part of the lake. On one of these islands they found an eagle perched upon a nopal, which grew out of a rock, and they selected that spot for their permanent abode, in compliance with the oracle of their god, who gave them that omen as a sign of the termination of their migration. They built there a wooden teocalli or temple to their idol, and encompassed it with houses, giving the place the name of Tenochtitlan, that is, the place of a nopal upon a rock, and also of Mexicaltzinco, from the name of their god of war, Huitzilopochtli, or Mexitli, from which the present name of Mexico is corrupted by the Spaniards. This event, according to the Aztecs' chronology, took place in the year of the two Calli (1325 of our æra). They divided their city into four quarters, each of which they dedicated to some particular god, to whose honour they built a teocalli.

In 1338 discord arose among them, and the tribe was divided into two factions, one of which removed to a small island north-west of the teocalli of Mexitli, where they built a town, called at first Xaltilolco, and afterwards Tlatelolco, which was conquered and united to Tenochtitlan under the reign of Axajacatl, about A.D. 1464.

The government of the Aztecs was at first aristocratical. A body of twenty men of the most distinguished in the tribe presided over the affairs of the nation. In 1352 they altered this form of government, and chose for their king Acamapitzin, a noble chief of their own tribe. The Tlatelolchians, after the example of their brothers, also altered the form of their government, and requested a king from the chief of Azcapozalco, to whom the territory where they built their town belonged, and that chief gave them a prince of his own family, named Quaquauhpitzahuac. On the death of Huitzilihuitl, the second king of Mexico, it was established as a law, that four of the nobles should elect the king out of the collateral relations of the deceased monarch, to the exclusion of his children. This law continued till the destruction of the empire. Motezuma-Ilhuicamina, the first of that name, was the great legislator of the Aztecs. He also erected the great teocalli of Mexico, made several important conquests, and after the great inundation, which took place in 1446, ordered the construction of a magnificent dyke, nine miles long and sixteen feet and a half wide. In a succession of wars with the surrounding states, the Aztecs extended their dominion over all the country comprising the modern districts of Vera Cruz, Oaxaca, Puebla, Mexico, and Valladolid, an extent, according to Humboldt, of from 18,000 to 20,000 square leagues.

Until the latter times of the empire, the royal authority was restrained within very narrow limits. The emperors were not allowed to undertake any affair of importance which could affect the community, without first consulting the three supreme councils of the nation. These councils were composed of the nobility. With the power acquired by conquests the emperors gained every day more ascendency over the nation, until, under the emperor Motezuma II., the Aztec government degenerated into a complete despotism. When the king was chosen he was consecrated with many fantastic and superstitious ceremonies by the high-priest, after which he was compelled to fast rigidly for four days; then he went to war in order to procure prisoners to serve as victims at the festival of the coronation. When the king returned from this expedition he was solemnly crowned. The crown was a sort of mitre, made of thin plates of gold, and ornamented with feathers. The mantle was a square piece of cotton stuff, with stripes of deep blue and white colour. The principal servants of his household consisted of a grand-steward, and the treasurer of the jewels. The latter was at the same time the head and director of the workmen employed in the palace for the polishing and setting of gems. All the offices in the king's household were held by the first nobility. Other nobles superintended the cultivation of the lands belonging to the king, and had the usufruct of them. These noblemen accompanied the king everywhere, and each presented him with a nosegay on certain occasions.

When war had been decided upon against any nation by the king and his councils, an ambassador was sent to the chief of that nation, to signify to him the motive of the war and to propose the means of avoiding it. If the chief submitted to the terms proposed, peace was granted; if he refused, two successive embassies were then sent, the first to the most influential men in the nation and another to the people. They also sent with their ambassadors an image of their god Mexitli, which if the enemies placed among their own gods, that nation became the allies of the Aztecs. In every nation of Anahuac (the most comprehensive native name for New Spain) there was a field set apart, called jaotlalli, in which the first battle was fought. When the Aztec army was numerous it was counted by xiquipilli, or divisions of 8000 men. The dignity of generalissimo was the first in the state after the emperor. Three other superior officers commanded under him. The generals and other officers, who were always chosen out of the nobility, gradually rose from the rank of the common soldier. A new soldier was at first employed in carrying the arms and baggage of his master. He was almost naked. When he captured a prisoner, he received a square mantle, with a device of flowers, which was the first sign of promotion in the army; when he captured four enemies,

he received likewise a mantle having two stripes of black and yellow, and a fringe round. They had three military orders, called those of the princes, of the eagle, and of the ocelot, or American tiger. The first was the most honourable, and its device consisted in the person knighted wearing his hair tied upon the crown of his head, and hanging from it as many tassels of cotton as the feats of valour he had performed. The defensive arms of the Aztecs were the shield, the cuirass, and the helmet. The shields were made of reeds interwoven with cotton thread and covered with feathers, or of turtle-shell covered with plates of copper, silver, or gold. Some of these shields were large enough to cover their bodies entirely, and were made so that they could be folded together and carried under the arm, like an umbrella. Their cuirasses were made of cotton quilted, and were arrow proof. Their helmets were made of wood, in the shape of heads of tigers, serpents, and other animals. Their offensive arms were slings, bows, spears, pikes, clubs, and swords. They never made use of poisoned arrows. Their sword was a piece of some hard wood, three feet and a half long, the edge of which was formed of obsidian. The first blow of this weapon was terrible, but it was then rendered useless. Their ensign resembled more a Roman than a modern standard. It represented an eagle in the act of darting upon a tiger. They were acquainted with the art of fortifying cities, and surrounded them with walls, ditches, and palisadoes; but their principal fortifications were their teocallis, or temples.

The judicial system of the Aztecs showed no small degree of civilization. A supreme judge called cihuacoatl, decided definitively in all matters, both civil and criminal, and appointed some of the inferior judges and also the collectors of the revenues. A tribunal composed of three judges called tlacatecatl, decided upon all the cases in the first and second instance. These judges sat every day to hear all the causes brought before them. In civil matters there was an appeal from this tribunal to the cihuacoatl, but not in criminal causes. In every quarter or division of the city there was a certain magistrate elected annually by the people called teuctli. This magistrate judged in the first instance, and was obliged to give an account every day to the tlacatecatl of everything that had happened in his peculiar district. These teuctli had other inferior officers under them. In every commune there were municipal officers elected by the inhabitants. There were also officers who patrolled and watched during the night. In matters of importance the judges were bound to consult the king. Every month, or rather every twenty days, all the different judges assembled before the king, when all the cases still left undecided in their respective tribunals were finally settled. Their criminal laws were very severe. Treason, voluntary homicide, robbery of gold or silver, theft in the market-place, adultery, and incest, were the crimes visited with the utmost rigour of the law. Drunkenness in a young man was punished by hanging, and throwing the body afterwards into the lake, if the offender was of a noble family; if he was one of the common people, he was made a slave for the first offence, and hung for the second. At the age of seventy, a man or a woman might get intoxicated with impunity. No advocates were in use among the Aztecs: the criminal himself conducted the defence of his own cause. No other proof could be adduced except witnesses, and in the absence of witnesses the criminal was allowed to clear himself by an oath. They swore by the sun: the form of taking this oath was to touch the ground with two fingers and then carry them to their mouths.

The right of private property was fully understood among the Aztecs. The lands were held by different tenures: some possessed them in full right, and were allowed to transfer them either by sale or demise; others held them along with certain offices, and consequently could not dispose of them. The lands were apportioned among the king, the priests, the nobles, and the people. Of these the nobility alone were full possessors; the other three merely enjoyed the use. The common lands were cultivated in common, and the produce was deposited in storehouses, from which all the inhabitants were supplied gratis according to their wants. In their paintings the lands of the king were painted red, those of the nobility scarlet, and those of the people light yellow. All the inhabitants of the conquered countries were obliged to pay a tribute in kind to the king, both of the produce of the field, and of their industry, and there was a storehouse in every town in which the produce of this tax was deposited, and proper officers were appointed to collect it. Slavery was admitted among the Aztecs. Slaves were either bought or persons became so as a punishment for certain crimes, but the son of a slave was in all cases a free man.

The Aztecs had some imperfect idea of a Supreme Being, absolute and eternal, to whom worship was due. They believed him to be invisible and incorporeal, and therefore no representation of him was either painted or sculptured. They gave to this being the name of Teotl. The epithets of Ipalnemoani, him by whom we live, and Tloque-Nahuaque, he who has all in himself, were also given to him. But the knowledge of this supreme being was obscured by a multitude of inferior deities. They also believed in the existence of an evil spirit, called by them Tlacatecolototl, whom they supposed to be always employed in causing evil to mankind. The souls, both of man and beast, they believed to be immortal. According to their notions of a future state, there were three different mansions where men enjoyed a future state of existence. The first was the house of the sun, where the soldiers who fell in battle, and the women who died in childbed, were received. It was the daily occupation of the spirits of the departed warriors to hail the sun with hymns and dances on its rising, and to accompany it to the zenith, where it was met by the female spirits, who in like manner escorted the great luminary in the rest of its course. After a period of four years had elapsed, they were transformed into clouds, or into birds of the most brilliant plumage, and they ascended into heaven to breathe the pure ether or occasionally descended on the earth, where their time was passed in singing and inhaling the perfumes of plants and flowers. The second abode was the Tlalocan, or the abode of the god Tlaloc the god of water, which was the place that the spirits of young children who had been sacrificed to that god, and of all others who had died of certain diseases inhabited. In this place they were regaled with every sort of delicacy that could produce delight. The third abode was the Mictlan, or hell, where Mictlanteuctli and Mictlancihuatl, the god and goddess of hell, reigned. This place was destined for those who died in any other way. In this place the departed spirits suffered nothing except the inconvenience arising from the complete darkness of the place.

The Aztecs supposed that four successive revolutions had at different epochs destroyed mankind. These epochs were called ages or suns. The first was called Tlaltonatiuh, or the age of the earth, which took place 5206 years after the creation of the first sun, in which the giants, who had then dominion over the earth, were destroyed by famine, and those who escaped from this scourge were devoured by tigers. The second was called Tletonatiuh, the age of fire, and happened 1804 years after the preceding age. At this epoch the world was destroyed by fire, and as the birds only could escape the general conflagration, men were changed into birds. A man and a woman were, however, saved in a cave. The third epoch, Ehecatonatiuh or the age of wind, took place 4010 years after the age of fire. In this revolution the world was destroyed by violent hurricanes, and the few men who escaped were changed into apes. The fourth epoch, Atonatiuh, the age of water, happened 1008 years after the preceding revolution. In this revolution a universal deluge occurred, in which all men were changed into fishes, except a man and a woman. This privileged pair were saved in the hollow of a tree: the children of this couple were all born dumb, and were taught to speak by a dove, but every child learned a different language. The duration of these four ages, which, according to Humboldt's interpretation, is, as we have stated, 18,028 years, does not exceed 1417 years according to the interpretation of Ixtlilxochitl. (See Humboldt's *Atlas Pittoresque*, p. 209.)

In all the European historians who have written on the antiquities of the Aztecs, the order of these revolutions is different; the age of water being placed first, and that of fire last. This error, according to Humboldt, has arisen from their reading the painting which represents this part of the Aztecs' history from left to right, beginning at the top, instead of reading from right to left, beginning at the bottom, which is the system adopted by the Mexican historian Fernando Alba Ixtlilxochitl, who lived soon after the conquest: he was a great grandson of the last king of Acolhuacan. His history of New Spain was in manuscript, in the library of the Jesuits at Mexico.

Besides the supreme being, the Aztecs worshipped innumerable divinities, the principal of which were thirteen. Every trade and profession had its particular god. They had besides their household gods, of which the king and the first noblemen had six, the inferior nobility four, and every plebeian two. These divinities were worshipped by offering to them sacrifices of human victims, of animals, plants, flowers, and fruits; by prayers, hymns, fastings, and other rigorous penances, in which the worshippers frequently shed their own blood. The human sacrifices were so horrible, that the simple recital of them excites disgust; and so frequent and numerous, that the Mexican historians calculate that no less than 20,000 victims perished every year, but this must be a great exaggeration.

The priests were very numerous. Besides serving in the temple, they were employed in educating the youth, in painting the annals of the empire, in forming and regulating the calendar, in composing hymns, and in other scientific and literary pursuits. The body of the priests was subject to two high priests,—the Teoteuctli, or divine lord, and the Hueiteopixqui, or high priest: both offices were elective; but it is not known whether the electors were the body of the priests themselves, or the electors who appointed the king. In Acolhuacan the high-priest was always the second son of the king. (Clavigero, vol. ii. ch. vi. p. 39.) There were also persons of both sexes devoted to the service of the gods, who lived in retirement, practising very severe austerities.

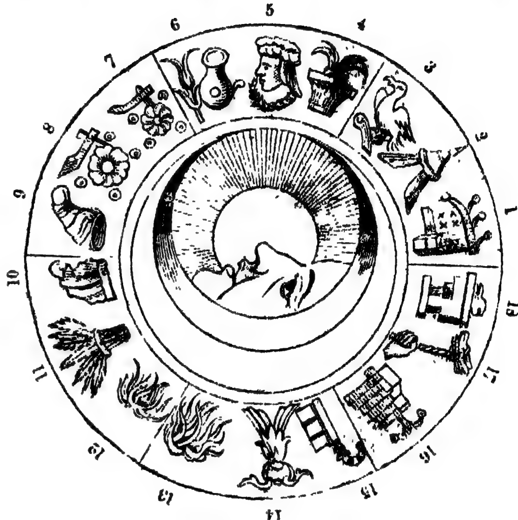
The Aztecs had two ceremonies, resembling the circumcision of the Jews and the baptism of Christians. Every child who was devoted by his parents to the service of the temple was consecrated by the priests by making an incision on its breast with a knife of obsidian. A child of either sex, four days after its birth, was taken by the midwife to the court of the house, where a ceremony analogous to our baptism was performed.

The Aztecs attended very assiduously to the instruction of their children. In general, every child followed the profession of his father. From their third to their fifteenth year they were instructed in their houses by their parents. At the age of fifteen they were sent to the temples, or to some private school, to be taught those acquirements which their parents were unable to impart to them. The education of the Aztec youth is described in the collection of Mendoza, plate lviii.-lxiv. (Aglio, *Antiquities of Mexico*, vol. i.)

When a man and a female had arrived at a proper age, which for the former was twenty or twenty-two, and for the latter seventeen or eighteen, the marriage was contracted between the families by means of a female negociator, who was sent to the bride that the father of the youth had chosen for his son. This woman, accompanied by four other females, with lighted torches in their hands, carried the bride upon her shoulders to the house of the bridegroom. There she was met by the relations of the intended husband, who, after fumigating her with copal, introduced her into the house. The couple were placed upon a mat by the fireside, and the female negociator tied together the end of their garments, in which ceremony they made the marriage contract consist. An elderly man and woman, who at the same time acted as witnesses to the ceremony, then delivered a speech to the new-married couple, and presented them with some food. Four days after they went to the temple to offer to their god the mats on which they had slept.

The ceremonies which the Aztecs used in their burials were no less singular. As soon as any one died, a certain master of ceremonies first covered the body with pieces of the paper of aloe, and sprinkled the head with water; then he dressed the corpse in a garment representing that of the particular god or gods who were the patrons of the profession or professions which the deceased had followed in his lifetime. Under this dress they placed a flask of water for the journey which the deceased was going to enter on, and likewise six pieces of paper containing instructions, in virtue of which he would be allowed to pass through different places in his voyage. The body was afterwards burnt, with all the ornaments, arms, instruments, and tools of the trade of the deceased, and with a techichi, a domestic quadruped of the Mexicans. Whilst the master of ceremonies was kindling the fire, some priests sung funeral hymns. When the body was consumed by the fire, they placed the ashes in a vessel, with a gem of more or less value, according to the means of the deceased's family, and this funeral urn was buried in a deep hole, and libations of pulque offered upon it for several days. With the bodies of kings and great lords, their priest, some of their wives, slaves, and other servants of their household, were killed and then burnt. Those who died of leprosy and other diseases, or before attaining the age of seventeen, were buried without burning: their bodies were placed in niches made of stone and mortar, sitting upon a chair surrounded by their arms, and wearing many valuable jewels. They had no appointed place for burying their dead; some buried them in their own gardens, and others in the teocalli. The ashes of the kings were deposited in the great teocalli.

The manner adopted by the Aztecs of computing time shows that they had attained a certain degree of astronomical knowledge. They had a solar year of 365 days divided into eighteen months, of twenty days each. The five complementary days, which they called nemontemi, or useless, were added to the last month. The year was



[From Clavigero.]

represented in their paintings, as the engraving shows, by a circle, in the centre of which they placed a figure intended to represent the moon illuminated by the sun; and in the circumference they placed the symbols of the eighteen months. The month was divided into four periods of five days each. Thirteen of their years formed a period analogous to the Roman Indiction, which they called tlalpilli; four tlalpilli formed a xiuhmolpilli, or ligature of years; and two xiuhmolpilli a huehuetiliztli, or old age of a hundred and four years. Instead of adding one day every fourth year, as we do, they added thirteen days every fifty-two years. They had also a lunar year, by which they regulated their sacred festivals. The years were distinguished by the names of Tochtli, a rabbit; Acatle, a cane or reed; Tecpatl, a flint; and Calli, a house. The first year of their century was called first rabbit; the second, second cane; the third, third flint; the fourth, fourth house; the fifth, fifth rabbit, and so on, till the indiction ended with the thirteenth rabbit. The second period began with the first reed, and then followed second flint, third house, and fourth rabbit, to end with the thirteenth cane. The order of the third period was flint, house, rabbit, reed; and that of the fourth, house, rabbit, reed, and flint. The age was represented in their paintings by a circle formed by a serpent biting its tail, and forming four foldings with its body, which corresponded to the four indictions. In the centre of this circle they painted a face representing the sun, and round it the images of a rabbit or hare, a reed, a knife of flint, and a house, and upon each sign the number of that sign expressed in dots or rounds. Their year, according to the computation of Clavigero (vol. ii. p. 234), began on the 26th of February, on the first year of the cycle; but every fourth year it was anticipated one day, and on the last year of the cycle it began on the fourteenth of the same month, because of the thirteen intercalary days of the leap years. According to Humboldt (*Researches*, p. 132), the beginning of the Aztec year varied from the ninth to the twenty-eighth of January. The day was divided into eight parts, four of which were for the rising and setting of the sun, and two for its passage across the meridian, corresponding to the third,

ninth, fifteenth, and twenty-first hours of astronomical time. They ascertained the hour in the day-time by the sun, and at night by the stars. The names of different months were taken from some festival, or from some circumstance, which usually happened in the month, and the same was observed with regard to the names of the days. The days were all designated by a particular name. At the end of every xiuhmolpilli they held a religious festival, somewhat analogous to the sabbatic year of the Jews. On the eve of the festival they destroyed the furniture of their houses (Clavigero, vol. ii. p. 84), and extinguished the fires. On the evening of the same day, some priests proceeded from the principal temple into a neighbouring mountain to kindle the new fire. The priests always set out in proper time to arrive at the place a little before midnight. The women remained confined in their houses with their faces covered, as the Aztecs believed that they would be changed into wild beasts if they witnessed the ceremony; the men stood in anxious expectation upon the terraces of their houses awaiting the result, for they fancied that if the priests did not succeed in obtaining the new fire the world would be destroyed. The fire was procured by means of the friction of two dry pieces of wood upon the breast of a prisoner, who was afterwards sacrificed upon the mountain. After the fire was lighted, the priests returned to the city, and, having lighted the fire in the temples, they distributed among the inhabitants a portion of this sacred fire. The next thirteen days were spent in supplying their houses with new things, in the place of those which had been destroyed.

The Aztecs had made some progress in the arts of social life. The monuments of architecture, sculpture, and painting which still exist, though very far behind that degree of perfection which these arts had obtained among some of the nations of the old continent, are not devoid of merit. The Aztec painters had no knowledge of perspective, nor of light and shade. Their designs are coarse and uncouth; their figures are fantastical, and only drawn in profile; but they are remarkable for the brilliancy and durability of their colours. Their works of architecture and sculpture evince a far superior degree of excellence. The Aztecs were also acquainted with the art of casting in metal figures of natural objects. Their mosaic, or rather works of embroidery, were admirable. The method they adopted was to glue feathers of different colours upon a piece of canvas, and then place it upon a tablet of wood or a plate of copper. They laid the feathers so even and matched the colours so admirably, as to give to objects thus represented the appearance of painting. Another work, which might with greater propriety be called mosaic, they made with pieces of shells of different colours. This work was done by separate artificers, every one of whom undertook a certain part of it, and then another artist arranged the different parts together, so as to complete the performance.

The houses of the poor were made of reeds, or of unbaked brick, and were roofed with a certain species of grass, upon which they placed leaves of the aloe, cut in the shape of tiles. They had but one apartment, where all lived together. The houses of the citizens had besides an ajauhcalli or oratory, and a temazcalli or bath. The nobles had their houses built with stone and mortar, and consisted of two stories, covered with a flat roof or terrace. The stone most commonly used for building was the tetzontli, a red stone, very hard and porous. Their tools were made either of obsidian or copper. Their stuffs were of cotton, of rabbit's hair, of a certain species of palm, and of thread made out of the leaves of the aloe. The dress of the men consisted merely in a sash tied round the waist, with the two extremities hanging before and behind, and a square mantle, four feet long, the two extremities of which were tied upon the chest. This mantle covered the shoulders and all the body behind. The women wore a square piece of stuff tied round their waists, which descended down to their ankles, and a sort of waistcoat without sleeves. The stuff used by the poor was made of the aloe, and that of the nobles of cotton embroidered with feathers or rabbit's hair. Their shoes consisted in a sole cut out of the leaves of the aloe, fastened to the foot with a cord. The kings wore instead thin plates of silver, gold, or copper. None of the Aztecs ever cut their hair, with the exception of the virgins who were consecrated to the service of the temples; the men tied it on the crown of their heads, and the women let it hang down their shoulders. Both men and women wore rings and other ornaments in their ears, nose, and under lip, as also collars and bracelets. On their festivals they ate the legs and arms of the prisoners or slaves who had been sacrificed in the temple. They also made use of several intoxicating liquors, the principal of which was that called by the Spaniards pulque, made of the juice of the aloe. They were not acquainted with the use of beasts of burden. Things were conveyed from one place to another upon men's shoulders. They had public roads and inns, also bridges, some of which were suspended over the torrents. These suspension-bridges consisted in a sort of hammock, made of strong ropes of aloe, and suspended from two trees on each side of the stream. In their traffic with each other they made use of the bean of the cacao-nut (*Theobroma cacao*), a bag of which represented 8000 units; a feather or quill full of gold, which represented 400; and a sort of coin, the value of which is not known, made of copper, cut in the form of a T. In their chinampas, or floating-gardens, they cultivated Indian corn and several species of vegetables and flowers. These gardens were made upon large rafts formed of reeds, rushes, and brushwood, covered with the black mould of the lake. The farmer who cultivated it built at one of the extremities of the chinampa a hut for his abode. These gardens floated on the lake, or were attached to the shore.

The Aztec language wants the sounds corresponding to the letters *b, d, f, g*, and *r*, and abounds in those expressed by *l, x, t, tl, tz*, and *z*. The letter *l*, though occurring so often in that language, is never found at the commencement of a word. The language is very copious. Clavigero, as a proof of this assertion, gives a list of forty-four authors who have written in that language, mostly on religious subjects, and were able to express the most abstract ideas without being obliged to borrow any words from other languages. It has very few monosyllabic words, and although it allows great freedom in the compounding of words, even to the extent occasionally of no less than sixteen syllables, yet few are monosyllables in their roots. It abounds in diminutives, like the Italian, and there is no verb from which many verbal nouns are not derived, and few substantives that cannot be converted into verbs. The plural of nouns is formed by doubling the first syllable and adding the particle *m* to the word, thus from miztli, a cat, is formed mimiztin, cats. This reduplication is sometimes made in the middle of the word, as ichpochtli, a girl, ichpopochtin, girls. In all the examples quoted by Humboldt, it should be observed, the *l* is dropped in the plural. Verbal nouns are formed by means of the particle liztli; thus from tlatlolana, to ask a question, they form the noun tetlaniliztli, a question. The Aztec language is very regular in its construction, and abounds in words adapted to compliment. The word notlazomahuizteopixcatatzin, *i. e.*, my esteemed lord and reverend priest and father, is the word commonly used by a Mexican in addressing a priest. This word is thus analyzed by Clavigero, no, *my*, tlazontli, *esteemed*, mahuiztic, *revered*, teopixqui (*god-keeper*), *priest*, tatli, *father*.

The Aztecs cultivated the arts of oratory and poetry. Few of their moral, religious, historical, and dramatic performances have reached us. They had orators, who spoke on certain public occasions, such as on embassies, elections of kings, marriages, and other ceremonies. Specimens of these discourses have been transmitted to us by Father Sahagun in his *Historia General de Nueva Espana*. (See Aglio's *Antiquities of Mexico*, vol. vii.)

The Aztecs were not acquainted with the art of alphabetic writing, but represented past events by means of certain hieroglyphics. The objects were represented either in full, or by such a part of them as was considered sufficient to convey the meaning of the painter. To record the events of their history they painted round the canvas the signs of the days or years, and close by each sign the hieroglyphics representing the event which at that period had taken place. In writing any series of hieroglyphics, Humboldt says that their order was from right to left, beginning at the bottom of the page and proceeding upwards; but Clavigero says, that if the painter began his series at the right superior angle of the canvas, he proceeded horizontally from right to left; if he began at the opposite superior angle, he continued perpendicularly downwards; if he began at the left inferior angle, he proceeded horizontally to the right; and perpendicularly upwards when he began on the opposite inferior angle. We have seen a series of Aztec hieroglyphics

written in these four different ways, but the most usual method is that which Humboldt states. They had certain conventional symbols to represent earth, water, wind, age, year, sky, day, night, the middle of night, speech, and motion. They also could express whether a person was dead or alive, whether he was speaking or silent, and, if speaking, who spoke the most. They possessed other signs, by means of which they expressed the name of any person or place. A man's head with a crown, and behind it the hieroglyphic of the sky pierced with an arrow, represented the name of the king, Motezuma-Ilhuicamina, which name signifies, he who pierces the sky with an arrow; a tunal or nopal upon a rock expressed the name of Tenochtitlan, or the place of a nopal upon a rock. They had also certain signs to express numbers. The units, below fifteen, were expressed by rounds or dots. A flag, three parts of which were coloured, expressed fifteen; if the flag was of one colour, it expressed twenty; a feather represented four hundred, and a bag eight thousand. Thus when we see in their paintings the hieroglyphic of a place, and by the side of it certain articles surmounted by a feather, it expresses that such place paid a tribute of four hundred of such articles. (See vol. i. of Aglio's *Antiquities of Mexico; the Collection of Mendoza*, part ii. p. 17.) To such as may be inclined to study the antiquities of the Aztecs, we recommend the excellent work, recently published by Lord Kingsborough, *On the Antiquities of Mexico*—a work which, for the number and variety of the fac-similes of hieroglyphics, and monuments relating to the antient Mexicans, no less than for the skilful arrangement and splendour of the performance, will always reflect honour upon the age and country in which such a work has been produced, and upon its modest author, who has not even mentioned his name in it. The first four volumes of this work contain fac-similes of all the Mexican paintings in the Vatican, in the Borgian museum of the College of Propaganda at Rome, of the Codex Tellcriano Remensis at Paris, of those of the Institute of Bologna, of the libraries of Oxford, Berlin, Vienna, and Dresden; and also several collections belonging to private individuals. The fourth volume is almost entirely occupied by the rare and excellent collection of engravings of Mexican monuments made by Captain Dupaix by order of the Spanish government. The three remaining volumes contain the description of the paintings, and monuments in Spanish, Italian, and English, with numerous judicious and learned notes and criticisms. The original and interesting *Historia General de Nueva España* of Father Sahagun, never before published, occupies the whole of the seventh volume.

The following is a chronological table of the kings of the Aztec dynasty, taken from Clavigero, vol. iv. pp. 51-55:—

	A.D.
Acamapitzin	1352-1389
Huitzilihuitl	1389-1410
Chimalpopoca	1410-1422
Izcoatl	1423-1436
Motezuma-Ilhuicamina	1436-1464
Axajacatl	1464-1477
Tizoc	1477-1480
Ahutzotl	1480-1502
Motezuma-Xocojotzin	1502-1520
Cuitlahuatzin, reigned three months	1520
Quauhtemotzin, reigned nine months	1521

(See Clavigero, *Storia Antica del Messico*, Cesena, 1780; Humboldt, *Histoire Politique du Royaume de la Nouvelle Espagne; Atlas Pittoresque, ou Vues des Cordillères;* Aglio, *Antiquities of Mexico*, London, 1830.)

AZU'NI, DOMENI'CO ALBERTO, was born at Sassari, in the island of Sardinia, about 1760. He applied early to the study of the law, and paid particular attention to the maritime regulations, which have often been matter of dispute between nations. Azuni becoming known as a distinguished jurist, was made a senator and judge of the tribunal of commerce of Nizza, in the continental states of the king of Sardinia. In 1795, after the French had taken possession of Nizza, Azuni published his *Sistema universale dei Principii del Diretto Marittimo dell' Europa*, in which he endeavoured to reduce the maritime laws to fixed principles. He afterwards recast his work, and published it in French at Paris, with the title of *Droit Maritime de l'Europe*, 2 vols. 8vo. 1805. The first volume, which is historical, is a recapitulation of the principal maritime regulations and usages of different nations, antient and modern. Great warmth is here displayed against what is called the assumption of superiority by the British navy over the flags of other countries, and its disregard of equal rights on the seas, and especially of the rights of neutrals, which formed at the time a subject of loud complaint on the part of Bonaparte's government. The second volume discusses the maritime rights of nations in time of war. The author shows himself decidedly favourable to the practice of arming privateers, and seizing the merchant-vessels and property of persons belonging to an enemy's country, a practice which, although general, has been reprobated by several writers. This work recommended Azuni to Napoleon's ministry, who appointed him one of the commissioners for the compilation of the new commercial code, and intrusted him with the part relative to maritime affairs.

In 1807 Azuni was appointed president of the Court of Appeal at Genoa, which city and territory had been annexed to France. He was afterwards elected member for the same to the legislative corps sitting at Paris. He there published his *Essai sur l'Histoire Géographique, Politique, et Morale de la Sardaigne*, 2 vols. 8vo., accompanied by a map of that island, the draught of which was taken from the archives of Turin. The second volume is entirely occupied by the natural history of Sardinia. Azuni may be said to have been the first writer who made Sardinia known to the rest of Europe; but since the publication of this work other writers have given a fuller account of that interesting island. In 1809 Azuni wrote a pamphlet, in which he ascribed to the French the invention of the mariner's compass. This engaged him in a warm dispute with those who maintained the prior right of the Italians to the discovery, and especially with the orientalist Hager, professor in the University of Pavia, who refuted Azuni's book. Azuni next published a *Dictionary of Mercantile Jurisprudence*, which is much esteemed, and of which a new edition was published at Leghorn in 1822. He continued his functions in the tribunal of Genoa until the fall of Napoleon, when, like many others, he lost his situation. He then withdrew first to Nizza, and afterwards to his native island of Sardinia, where the late King Charles Felix appointed him judge of the consulate of Cagliari, and librarian to the University of the same city. He died at Cagliari in January, 1827. He also wrote several other works, among which, *Mémoires pour servir à l'Histoire Maritime des Marins Navigateurs de Marseille*. Azuni was member of several academies. (*Biografia degli Italiani Viventi*.)

A'ZURITE, a term used by Phillips to denote lazulite, under which name this mineral is most generally described by mineralogists. [See LAZULITE.] It is different from azure-stone, by which name lapis lazuli, the ultra-marine of painters, is sometimes known.

INDEX TO THE LETTER A.

VOLUME I.

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*** In the few instances in which the accentuation given in the above Index varies from that given in the body of the work, that in the Index has been adopted after deliberate consideration.

B, which occupies the second place in the Hebrew alphabet, and those derived from it, is the medial letter of the order of labials. It readily interchanges with the letters of the same organ. 1. With *v*, as *habere* Latin, *avere* Italian, to have; *habebam* Latin, *aveva* Ital. I had. In Spain, and the parts of France bordering upon Spain, the letter *b* will often be found in words which in the kindred languages prefer the *v*. This peculiarity has been marked in the following epigram by Scaliger—

> Haud temere antiquas mutat Vasconia voces
> Cui nihil est aliud vivere quam bibere.

The modern Greeks pronounce the *b*, or second letter of their alphabet, like a *v*: thus βασιλεὺς, *basileus*, is pronounced by them *vasilefs*. When they write foreign words, or words of foreign origin, it is not unusual for them to express our sound of *b* by μπ (*m p*). It appears probable that the antient Greeks pronounced the *b* more like the Spaniards and modern Greeks than we do; for they wrote the Roman names *Varro*, *Virgilius*, thus—Βάῤῥων (Barron), Βιργίλιος (Birgilius). The Macedonian Greeks wrote Φίλιππος thus—Βίλιππος (Bilippus).

2. The interchange of *m* and *b* takes place very frequently, especially when they are followed by the liquids *l* or *r*. Thus *malakos* and *bluks* are two Greek nominatives, signifying *soft*. *Meli*, in the same language, means honey, and *blitto* signifies 'I remove the honey from the comb.' So *bro-tos*, the Greek for mortal, and *mor-i*, the Latin for to die, contain a common root. An interchange of a similar nature marks the difference between the Greek *molubos* or *molubdos*, lead, and the Latin *plumbum*. If an *m* in the middle of a word be followed by either of these liquids, the *m* is retained, but is strengthened by the addition of a *b*, just as a *d* inserts itself between *n* and *r*. Instances are to be found in nearly all languages: *mes emer-ia*, mid-day, was reduced by the Greek ear to *mesembria*; the Latin *cumulare*, to heap, has been changed to the French *combler*; the Latin *numerus*, number, to the French *nombre*, &c. The Spanish language affords examples of a still greater change. Thus, if a Latin word contain the letters *min*, after an accented syllable, we find in the corresponding Spanish term the syllable *bre* or *bra*: *homine* Latin, *hombre* Spanish, man; *femina* Latin, *hembra* Spanish, female; *famina* (middle-age-Latin), *hambre* Spanish, hunger. [See ALHAMBRA.] This corruption arises from a previous interchange of the *n* into an *r*, as in *diaconos* Greek, deacon, *diacre* in French. The Spaniards have carried this corruption even further, by changing the Latin suffix *tudine* (*tudo* nom.) into *tumbre* or *dumbre*: *consuetudine* Latin, *costumbre* Spanish, *coutume* French, custom; *multitudine* Latin, *muchedumbre* Spanish, multitude. 3. *B* interchanges with *p*. Of this the pronunciation of the English language by the Welsh and Germans presents sufficient examples. 4. With *f*. Thus the term *life*-guards appears to have meant originally, *leib*-guards, *body*-guards, from the German *leib*, body. The word was probably introduced by the Hanoverian Dynasty. 5. *Du* before a vowel in the old Latin language became a *b* in the more common forms of that language. Thus, in the old writings of Rome, we find *duonus*, good, *duellus*, fair, *duellum*, war, &c., in place of *bonus*, *bellus*, *bellum*. The Roman admiral Duilius is sometimes called Bilius; and in the same way we must explain the forms *bis* (*duis*) twice, and *viginti* (*dui-ginti*) twenty (*twain-ty*) compared with thir-ty, &c.) 6. *Bi* before a vowel has taken the form of a soft *g* or *j* in several French words derived from the Latin: *cambiare* (a genuine Latin word), *changer*, French; *rabies*, *rage*, French; *Dibion*, *Dijon*; so *rouge* has for its parent some derivative of *rubeo*, and *cage* is from *cavea*. 7. In some dialects of the Greek language a *b* exists (apparently as a kind of aspirate) before the initial *r*, where the other dialects omit it: as *brodon*, a rose, &c. Again *bl* and *gl* are interchanged in dialects of the same language. Thus *balanos* Greek, and *glans* Latin, are perhaps related words; as well as *blandus* Latin, signifying 'soft, mild, calm,' and *galenos* Greek, which has the same signification. For the forms of the letter B, see [illegible]

In the Sanskrit alphabet the letter *b* is classed in that division of the consonants called mutes, and in that subdivision of the mutes called labials. The subdivision of labials contains four letters—*p*, *ph*; *b*, *bh*; and *m*. The *p* and *ph* are called hard (*surd*) consonants; the *b* and *bh* are called soft (*sonant*); *bh* is the aspirated sonant corresponding to *ph* the aspirated surd. (See *Journal of Education*, No. xvi., p. 341, &c.)

B (in music), the seventh note of the diatonic scale, answering to the *si* of the Italians and French. In Germany it always signifies B-flat, B-natural there taking the name of H. B also stands for *bass*.

BAAL (from the root בָּעַל, *he governed* or *possessed*) means literally *lord*, *owner*; hence also *husband*. Baal, with the definite article, הַבַּעַל, *the Baal*, means the deity of the Phœnicians and Carthaginians, whose complete title seems to occur in a Maltese inscription, as מַלְקֶרֶת בַּעַל צוֹר, *Malkereth Baal Tsor*, i. e. *King of the City*, *Lord of Tyre*. (See *Philosoph. Transact.* T. 54 pl., lin. 1.) The name Malkereth is a contraction of מֶלֶךְ קֶרֶת, king of the city. Hence it appears likely that Baal and Moloch are names of the same idol. The cruel worship of Baal, together with that of Astarte, was frequently introduced among the Israelites, especially at Samaria. As the Greeks, Germans, and other nations frequently form the names of men by compounding them with the names of God (e. g. *Gottlieb*, *Gotthold*, *Furchtegott*, Θεόφιλος, Θεόδωρος, Τιμόθεος, &c.), so the Phœnicians and Carthaginians frequently formed names by composition with *Baal*, as Ethbaal (אֶתְבַּעַל), *with Baal*, the name of a king of the Sidonians (1 *Kings* xvi. 31), whom Josephus calls Ἰθόβαλος and Εἰθώβαλος, from אִתּוֹ בַּעַל, i. e. *with him* Baal; *Jerubaal*, יְרֻבַּעַל, i. e. *Baal will behold it*. Hannibal is written in Punic inscriptions הַנִּבַּעַל, i. e. *grace of Baal*; Hasdrubal עֲזְרוּבַּעַל, i. e. *help of Baal*.

In Hebrew also many names of cities occur, compounded with Baal; as Baal-Gad, Baal-Hammon, Baal-Thamar, &c.

The statues erected to Baal were called Baalim, or rather B'alim, בְּעָלִים. The temples and altars of Baal were chiefly built on the tops of hills under trees, and also on the roofs of houses.

The worship of Baal gave employment to a numerous priesthood, who burned incense, sacrificed children, danced round the altar, and if their prayers were not speedily heard, cut themselves with knives and lancets till the blood gushed out upon them. By this self-chastisement, the priests expected to excite the compassion of Baal, and thus to obtain the object of their prayers.

The general character of Asiatic idolatry renders it likely that Baal meant originally the true lord of the universe, and that his worship degenerated into the worship of a powerful body in the material world. Sanchoniathon states that the Phœnicians worshipped the sun as μόνον οὐρανοῦ κύριον, 'the only lord of Heaven,' called Βεελσάμην, *Beelsamen* (i. e. בַּעַל שָׁמַיִן, lord of heaven); and that this Beelsamen was the Greek Ζεὺς, *Zeus*. In the Septuagint, Baal is called Ἡρακλῆς, Hercules, called in the Phœnician language אוֹר־כֹּל, *Or-cul*, i. e. light of all. Some mythologists have asserted that Baal was Saturn (compare Servius *ad Æn.* i. 729); others have considered Baal to be the planet Jupiter. A supreme idol might easily be compared with those of other nations; hence arose this variety of opinions.

The statement of Herodian (v. 5; and Capitol. vit. Macrini, 9) that the Phœnicians and Syrians worshipped the sun, is confirmed by the occurrence of the name of Baal together with that of the sun on Carthaginian coins and Palmyrene inscriptions, as בַּעַל חַמָּן בַּעַל שֶׁמֶשׁ, בַּעַל שָׁמַיִם.

The name of Baal occurs frequently with epithets, as

Baal-B'rith, (בַּעַל בְּרִית.) *i. e.* lord of confederacy, or God of treaties, like the Greek Ζεὺς ὅρκιος, and Latin, Deus Fidius.

Beelzebub, (בַּעַל זְבוּב. *i. e. lord of flies,*) corresponds to the Greek Ζεὺς ἀπόμυιος, μυίαγρος, Zeus the fly-chaser (Pausan. v. 14): compare Hercules μυίαγρος.

Baal Peor (בַּעַל פְּעוֹר) is the Priapus worshipped by the Moabites on Mount Peor, from פָּעַר, *distendit.*

To worship Baal signifies frequently, in the phraseology of the Jewish writers of the middle ages, to practise the rites of the Christian religion. Rabbi Joseph Ben Josua Ben Meir tells us, in his *Chronicles*, that Clovis forsook his God and worshipped Baal, and that a high place was built at Paris for Baal Dionysius, *i. e.* the Cathedral of St. Denis. Rabbi Joseph informs us also that the Friar Vincent, of the sect of *Baal* Dominic, *i. e.* the Dominican Friar, was a Satan unto the Jews in Spain about A.D. 1430.

For further information on Baal we refer to the commentators on Judges, Kings, Chronicles, Isaiah, Jeremiah, Hosea; J. E. Elsner, *De Ritu Baalem adorandi*, Lang. 1723; Fromman, *De Cultu Deorum ex Onomothesia illustri*, Altorf, 1745, 4to. et seq.; Münter, *Religion der Carthager*, Kopenhagen, 1821, 8vo.; Serv. ad Æn. i. 729; Lingua Punica Deus Bal dicitur, Isidor. *Origin.* viii. 11; Creutzer's *Symbolik*, ii. 266, &c.; Eusebii *Præparatio evangelica*, i. 10; *Fragmenta* Sanchoniathon, ed. Orelli, p. 14; Gesenius in his dictionaries, and in the *Hallische Encyclopädie*; Winer's *Biblisches Real Wörterbuch*; *Classical Journal*, vii. p. 293.

BAALBEC, or BALBEC, called by the Greeks Heliopolis, or the City of the Sun, is in Cœle-Syria, in 34° 9′ N. lat., and 36° 58′ E. long., according to a map of the Holy Land and Syria, published in Pococke's *Travels* in 1745. Its situation, however, ought to be somewhere about 34° 1′ 30″ N. lat., and 36° 11′ E. long., according to Major Rennell. (See his *Treatise on the Comparative Geography of Western Asia*, vol. i. p. 75.) Major Rennell makes the distance from Tripoli 38¾ geographical miles, and from Palmyra 109 geographical miles.

Baalbec signifies, in the Syrian language, the City of Baal, or the Sun, the Greeks, in changing it into Heliopolis, as in many other cases, translated the Oriental name, which the Romans appear to have retained, until it was again changed into its original Syriac name, Balbec.

The city is pleasantly situated on a rising ground, near the north-east extremity of the plain of Bocat*, and immediately under the mountain-range called Anti-Libanus. This plain extends from Balbec almost to the sea, in the direction of N.E. by N. to S.W. by S.: the width appears to be in few places more than four, and not in any less than three leagues.

The rivers which water the plain are the Litane and the Bardouni; the former takes its rise in Anti-Libanus, a little to the north of Balbec; the latter rises in a valley at the foot of Mount Libanus, near a village called Zakely (Wood and Dawkins) or Zahala (Bruce), about eight hours' journey south-west of Balbec. This river joins the Litane in the plain, about an hour's journey from a village called Barillas. Pococke and De la Roque mention also another river called Ase, which they suppose to be the antient Orontes. It rises in the same plain about eight hours' journey north of Balbec, near a village called Ras. (Pococke's *Travels in Syria*, vol. ii. p. 106.) The Litane also receives a great increase of water from a fine fountain close by the city walls, called Ras el Ain, *the fountain's head.* These streams are augmented by several constant rills from the melting snows of Libanus, and form the river Casimeah, which enters the sea near Tyre. This abundance of water must at all times have rendered Balbec a delightful residence.

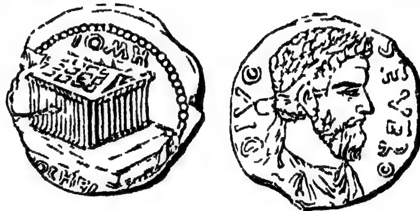
When the city was in a flourishing state, it is probable that the advantages arising from its commerce with Tyre, its connection with Palmyra, and the traffic with India, may have been very great, and possibly the source of its wealth, and the means of erecting those edifices, the ruins of which still exist. The ruins in front of the great temple, of which we shall speak hereafter, were most probably designed for Fora (markets or places of business), and are therefore provided with suitable shady porticos and exhedræ, in which the merchants could conveniently transact their affairs. The history of the place itself is very obscure; but from two Roman inscriptions of the time of Antoninus Pius, there can be no doubt that it was then a place of some importance, under the name of Heliopolis. These facts are also confirmed by several coins of Roman emperors.

At what time and by whom the city was first founded is wholly unknown; even the epoch when the temples, which from their style must be attributed to the Roman period, were erected, is matter of much uncertainty. 'The only historical authority for the building the temples of Balbec, is that of John of Malala, from whom we learn that Ælius Antoninus Pius built a great temple to Jupiter at Heliopolis, near Libanus in Phœnicia, which was one of the wonders of the world. (Joan. Malalæ, *Hist. Chron.* lib. xi.) Julius Capitolinus, who wrote the life of this emperor, does not mention the temple of Heliopolis.

'From the reverses on several coins of the Roman emperors, we find, first, that Heliopolis was constituted a colony by Julius Cæsar; and again, at a future period, having received part of the veterans from the fifth and eighth legions in the time of Augustus, was eventually made *Juris Italici* by Septimius Severus (Ulpianus, lib. i. *de Censib.*); and we accordingly find its temple, for the first time, on the reverses of this emperor's coins.

'At the same time also that we meet with Heliopolis on the coins of Julia Domna and Caracalla, vows in favour of that emperor and empress are inscribed on the pedestals of the columns of a great portico' (marked A on the plan), forming a sort of Propylæa to the extensive inclosures which we conjecture to have been used as Fora by the merchants. Several coins which appear to belong to Heliopolis are preserved in the British Museum.

'The representations of the temples at Heliopolis, impressed on these coins, are not always exact with regard to the form of the temple they mean to represent, as will probably appear in the following instances: — On the reverse of the medal of Septimius Severus, we find a temple, in form like the great temple of Balbec, and having, like it, ten columns in front with the legend COL. HEL. I. O. M. H. *Colonia Heliopolitana Jovi Optimo Maximo Heliopolitano.* On the reverse of another medal of



[Copper coin in the Brit. Mus. Actual size.]

the same emperor, with the same legend, there is a temple in perspective, having indeed the same form with both the great and the smaller temple of Balbec, but with only six columns in front, which is less than the number in either; and the same is repeated on the reverse of a medal of Caracalla. On the reverses of some medals of Philip the Elder and his wife Otacilia we find the same legend with a temple of a different form and size, bearing no resemblance to any of the temples of Balbec. Upon the reverse of another medal of the same Philip, we find a fourth temple, which seems to belong to Heliopolis, by the inscription Col. Jul. Aug. Fel. Hel.: Colonia Julia Augusta Felix Heliopolitana.' (Wood and Dawkins, *Ruins of Balbec.*) On the reverse of this coin, there is a flight of several steps leading to an area, in which is a temple of the form of the great temple of Balbec. This



[Copper coin in the Brit. Mus. Actual size.]

is in all probability an awkward and certainly an incorrect representation of that great temple, with the courts and the steps leading up to them. The propylæa do not appear to

* Bocat is variously written — Bocat, Bekka, Beka, Bquaa, and Bokah. (See Wood and Dawkins, Bruce, De la Roque, Rennell, &c.)

have been then built. On the reverse of the coin of Otacilia there is however a tolerable representation of this portico or propylea, varying in some particulars from the restoration by Mr. Wood. It would therefore appear to have been added after the first coin was struck.

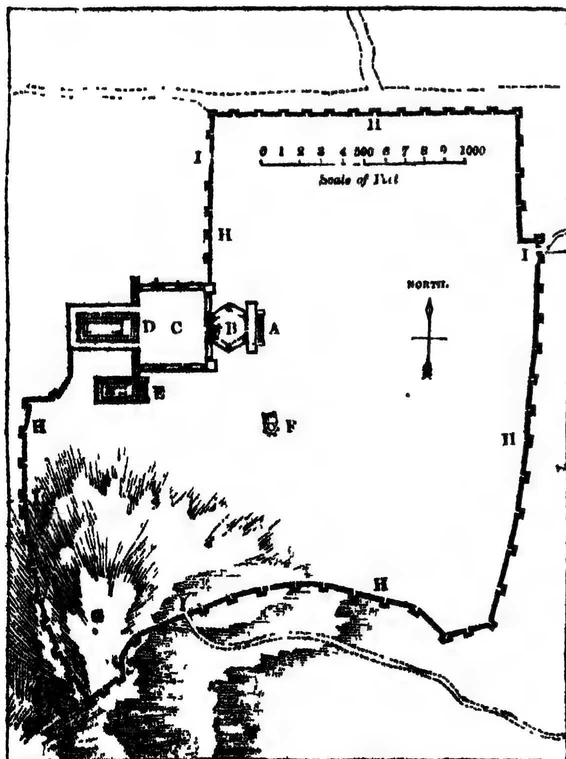


[Copper coin in the Brit. Mus: Actual size.]

Abulfaragius says that Constantine built a temple here, and that he abolished a custom of this place which permitted the promiscuous use of wives. (Greg. *Abulpharagii Hist. Compend. Dynast.*, p. 85.) We learn also from the *Chronicon Paschale*, that while Constantine closed the temples of the pagans only, Theodosius destroyed some, and converted the great and famous temple of Heliopolis into a church. (*Chron. Pasch. Olymp.* cclxxxix., p. 303.) 'Church history gives little more than the names of some bishops and martyrs of Heliopolis, and informs us that when Mahometanism prevailed, this part of the country fell under the government of the caliphs, called the Ommaiades, an ignorant and incurious race, during whose time we find only that Balbec was a considerable city.' (Herbelot, *Bibliothèque Orientale*.)

In the annexed cut we have given a plan of the city, principally from the drawings made by Wood and Dawkins, and corrected from a more recent survey by F. L. Cassas.

The area inclosed by the walls contains the great temple, with its courts or fora; and the smaller temple, or perhaps basilica, which is in the best condition of all the buildings. There is also a very singular and unique circular temple, of which we have given a view, and a curious column, on the highest situation within the walls, which possibly may have been a clepsydra, or water-dial.



By reference to the plan of the city, it will be seen that A is the portico or propylæa, which formed the grand front to the buildings B C D. The length of this building is 260 feet, and it is adorned with twelve columns. The columns, with their pedestals, are about 47 feet high; and the whole height of the order, with its attic and podium, is, according to Mr. Wood's restoration, about 93 feet. On the pedestals of these columns are the inscriptions mentioned above.

B - Hexagonal court or forum, to which the portico A leads, 190 feet long by 266 feet wide.

C—Quadrangular court or forum, 405 feet long by 440 wide.

D—Great temple, to which the approach was through the above-mentioned buildings. The length of this building is nearly 290 feet, the width 160, with ten columns in front and nineteen at the side; and when perfect was, from the ground to the top of the pediment, 120 feet high; the columns, with their pedestals, are 71 feet 6 inches high, and the entablature 11 feet 9 inches.

E—The smaller but more perfect building, which has eight columns in front and fifteen on the flank, is 225 feet in length, 118 in width, and 102 feet from the base of the columns to the apex of the pediment. The columns of the portico, which is dipteral, have been fluted, with the exception of the two columns at each flank.

F—The circular temple, which is 32 feet in diameter internally, and 63 at its greatest width externally, with a portico about 50 feet in width

G—A Doric column (Wood and Dawkins). Pococke calls this a Tuscan column.

H H, &c.—The city walls, said by travellers to be about 4 miles in circuit, but, according to the plan given in the *Ruins of Balbec*, by Wood and Dawkins, they will be found to be something less.

I—The city gates.

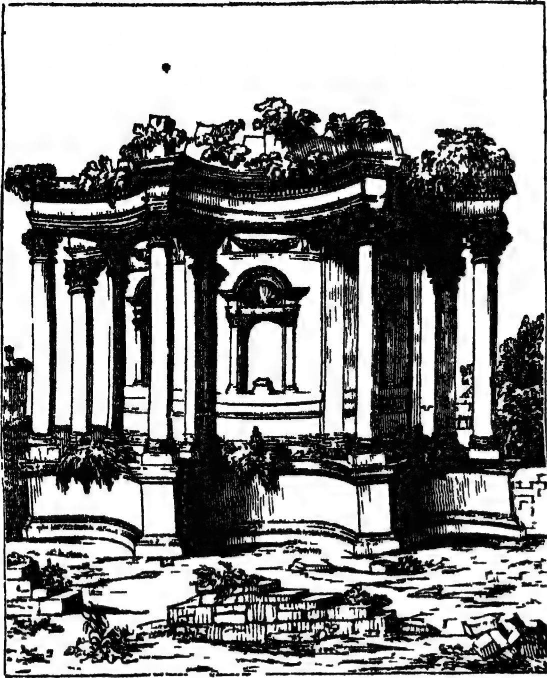
By a reference to the plans of the baths of Caracalla, at Rome (see Cameron's *Baths of the Romans*, 1 vol. fol., with plates, London, 1772) [see BATHS], it will be found that the two great inclosures or courts, with their porticos and exhedræ, very much resemble the open halls and exhedræ of the great baths there. Both, though applied to different buildings, appear to have been intended for the same purpose —the protection of the people from sun and rain. Few travellers who have visited Balbec appear ever to have considered for what purpose such vast inclosures were made; we have hazarded the conjecture that they were formed for the purposes of fora, which must have been essential to a wealthy community, such as Balbec certainly was, if the magnitude of its ruins may be taken as evidence of wealth.

Wood, however, thinks that the buildings round the inclosures served as schools and lodgings for the priests of the sun. Strabo informs us that he saw such habitations at Heliopolis, in Egypt. (Strabo, lib. xvii. p. 806.) The grand entrance to these buildings, which we have called *fora*, is through the portico or propylæa A, the ascent to which was by a magnificent flight of forty-eight steps, according to Wood and Dawkins: the propylæa were also flanked by a podium or low wall, at the extremity of which are two square exhedræ decorated with Corinthian pilasters. This front is represented on the reverse of the coin of Otacilia. The Turks appear to have turned this building into a fortress, and to have heightened the walls of the exhedræ, finishing them with a battlement after the Turkish fashion. The front of the propylæa and the adjoining building was called the Castle by the inhabitants at the time Maundrell visited Balbec in 1745. (Maundrell's *Journey from Aleppo to Jerusalem*, p. 134.) 'The shafts of the columns employed in the courts of the fora were of one piece of granite, and above the entablature there was an attic divided at intervals by short pilasters, forming pedestals for statues; a similar attic was placed over the exhedræ of the great entrance. In every part of these buildings also there were rich niches decorated with columns and adorned with statues and busts.

The great temple appears, from the plan of Messrs. Wood and Dawkins, to have been a peripteral pycnostyle temple, having ten columns in front and nineteen on the flank, the columns being seven feet ten inches in diameter, and eight feet one inch apart, except in the centre intercolumniation of the portico. The walls of the cella, as restored by F. L. Cassas, are shown on the plan (*Voyage Pittoresque de la Syrie*), with an internal arrangement of columns (see Plan). It appears that a *certain* Thevet, in 1550, saw twenty-seven columns of the great temple, and esteemed them the greatest wonders of Balbec. (*Cosmographie Universelle*, l. 6, c. 14.) Subsequent travellers mention but nine columns, with an entablature over them; and Volney, in 1785, saw only six standing. The shafts of these columns

consist of three pieces, united so exactly, that the blade of a knife cannot be inserted between the joints.

The smaller building, called by Mr. Wood 'the more entire temple,' but which appears in some respects to resemble an antient basilica, is very near the large temple, but built on a lower level, the bottom of the basement of the great temple being nearly as high as the top of the basement of the smaller edifice. The site of these buildings being very uneven, the basement on the south side is raised considerably, with a solid foundation of large



[View of the Circular Temple, from Wood and Dawkins.]

stones. This building is peripteral; the columns are also pycnostyle, and the portico is dipteral with a pseudo-intercolumniation before the antæ of the pronaos. We conjecture this building to have been a basilica, from the similarity of its internal arrangement to the basilica in the forum of Pompeii: it has, among other features of the basilica, the raised platform at the end, with the vaults below it and steps descending into them. In the plan we have shown this building with an internal arrangement of columns, on the authority of M. de la Roque and Pococke; the former mentions them very distinctly, and the latter has restored them on the plan published in his work. Mr. Wood, however, thinks that this internal arrangement is much more modern than the building itself; Wood and Dawkins, therefore, do not give the columns on their plan, although they were of opinion that they were placed there when the building was turned into a church. The roof appears to have been arched; and as there are no windows in the sides, we must conclude that there were openings in it. The columns of this building are also made of three pieces of stone, joined very accurately together without cement, and strengthened with iron cramps fixed into a socket worked in each stone. Most of the bases had two sockets, one circular and another square, corresponding to two others of the same shape and dimensions in the under part of the shaft: some of the largest of the circular cramps were a foot long and a foot in diameter. The bashaws of Damascus have carried away large quantities of iron from these ruins at different times, and have left marks of their attempts to get at the iron in the columns which are still standing. This method of putting together the shaft of a column contributes very materially, in a dry climate, to the strength and durability of a building, and in the most perfect building at Balbec a very remarkable instance of its utility is shown: a column has fallen against the wall of the cella with such violence as to drive in a stone of the wall without in the least disuniting the joints of the shaft. Maundrell, speaking of this building, says, 'that it strikes the mind with an air of greatness beyond anything that he ever saw before, and is an eminent proof of the magnificence of antient architecture.'

The circular building may be considered unique. Travellers have called it a temple. It is of the Corinthian order, with niches on the exterior of the cella, and decorated with twelve columns, eight of which form a dipteral portico, which has a flight of twenty-one steps in front. From the two lateral columns of the portico commences the circular peristyle of the building (see Plan). The entablature of the dipteral portico is carried in a straight line, and that of the peristyle is curved on the perpendicular face, and sweeps in an elegant line from column to column, the centre of the curved architrave being bedded on the circular wall of the building. This edifice is decorated in the interior with an Ionic order of columns, above which is another decoration, consisting of niches with pediments, and between each there is a single column with a small portion of an entablature over it; the roof was a dome probably open at the top, like the Pantheon at Rome. This building has been converted into a Greek church called St. Barbe.

The order most frequently used throughout these buildings is the Corinthian. The Ionic occurs in the interior of the circular building only; and in the niches which decorate the interior of the fora, as well as in the building which we have called the basilica, the Composite is employed. The niches are decorated with columns and pediments, and form the principal feature of these edifices in their ruined state; they were intended for statues and busts, the pedestals for which still remain; and, if we can credit De la Roque, there were quantities of statues and busts with inscriptions on their pedestals, but so much obliterated, that only one could be distinguished. Pococke saw in the fora two busts in mezzo-rilievo, one of which was very singular, being a young person with bull's horns coming out of his back: we should rather think that these were meant for wings. By a reference to the plates in Wood and Dawkins's *Ruins of Balbec*, it will be seen that these edifices were highly decorated with sculptured ornament very well executed.

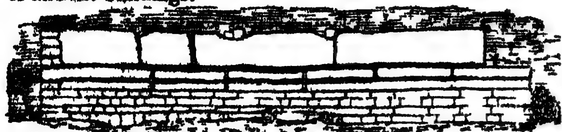
The single column on the hill stands on the south-west part of the city, where the walls enclose a little of the foot of Anti Libanus. This column is raised on a square foundation five feet seven inches high, consisting of three steps; the shaft and capital are composed of eighteen stones, each about three feet thick (high); about ten feet below the capital the shaft is surrounded by an ornament, consisting of five festoons very finely executed. On the top of the capital there are two tiers of stones, which form a small basin about three feet deep; from this basin there is a hole cut through the capital, with a semicircular channel nine inches wide and six inches deep, down the south side of the column and step. (Pococke's *Travels*.) This channel is not perpendicular, but forms an irregular curve. (See the drawings in Pococke's *Travels*.)

Without the walls there are also several ruins. The most remarkable is a Corinthian column in the plain, about two leagues from the city, and one from Mount Libanus, called Hamoudiade: the shaft consists of fourteen stones, each about three feet thick (high), and stands on a base of five steps, six feet three inches high; on the north side there is a square compartment, probably for an inscription, but no traces of any now remain. To the south-east of the famous temple there are fragments of columns of red granite, and some signs of the foundation of a building. There is also a Mohammedan sepulchre, of an octagonal form, to the south-east of the city, on the way to Damascus, the dome of which is supported by granite columns of the same kind, which were probably brought from the ruins to the south-east of the great temple. These columns are about twelve feet long and five feet in circumference, so that each column was probably sawn into two parts: the granite is of a most beautiful kind, with large spots, and is finely polished. (Pococke's *Travels in Syria*, &c. vol. ii.) There are also some ruins at a village a league from the city, on the road to Tripoli; among others, a building forty feet in length. (Bruce's *Travels in Syria*.)

The city walls appear to be a confused ... together in haste; with the rough stones a... capitals, entablatures, and reversed Greek i... walls are from ten to twelve feet in height, v... towers at intervals (see Plan). The gates a... rude style, with the exception of one on the no... there are the ruins of a large sub-basement, and bases for four columns, in magnificent ta

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much higher antiquity. Both within and without the walls are confused heaps of rubbish, which appear to be the ruins of antient buildings.



[Representation of the great stones of the basement of the great Temple, from Pococke's *Travels in Syria*]

In contemplating these ruins, we are struck by the immense size of the stones employed. Among others there are at least twenty of enormous dimensions. On the west side of the basement of the great temple even the second course is formed of stones which are from twenty-nine to thirty-seven feet long, and about nine feet thick, under this, at the north-west angle, and about twenty feet from the ground, there are three stones which alone occupy 182 feet nine inches in length, by about twelve feet thick, two are sixty feet, and the third sixty-two feet nine inches in length (See Pococke's *Travels in Syria*) Mr. Wood thinks that the word τρίλιθον, in the *Chronicon Paschale*, refers to these stones. The material is a white granite, with large shining veins like gypsum (Volney) This stone abounds on the spot and in the adjacent mountains, quarries have been opened in several places. In one called St Elias, there is still, among other stones of a vast size, one worked on three faces, which is nearly seventy feet long, and about fourteen feet in thickness each way. The more ornamented parts of these buildings were carved out of a coarse white marble, which was brought from a more distant quarry west of the city.

When Wood and Dawkins visited Balbec in 1751 only a small part of the city was inhabited, towards the south and west, near the circular building. The houses were mean, with flat roofs, on which, during the summer months, the inhabitants often pass the night. A large portion of the space within the walls is entirely neglected, while a small part is employed for gardens, a name which the Turks give to any spot near a town where there is a little shade and water. In 1751 the number of inhabitants amounted to about 5000, of whom a few were Greek and Maronite Christians, and some Jews, and all without trade and manufactures The bad government of the emirs of the house of Harfouche, the earthquake of 1759, and the wars of the Emir Yousef and of Djezzar, had reduced the population to 1200 at the time Volney visited Balbec in 1785. The ground immediately about the wall is rocky, and little advantage is taken of a command of water, which might be usefully employed to irrigate the gardens. A little cotton, a small quantity of maize, and some water melons, was all that the wretched inhabitants cultivated when Volney was there

(*The Ruins of Balbec*, by Wood and Dawkins, 1 vol folio, *Journey from Aleppo to Jerusalem*, by Henry Maundrell; M. de la Roque's *Travels*, Volney, *Voyage Pittoresque dans la Syrie*) Mr. Bruce also visited Balbec, and made four drawings of the ruins, which he presented to George III. These drawings are not to be found in the catalogue of 'Maps, Drawings,' &c., in the King's Library in the British Museum, given by George III and IV. to the nation, from which circumstance we may infer that they were kept back, and may perhaps exist in the present King's collection.

BABA', CAPE, in Turkish Babà Bournou, is the Cape Lectum of the Greeks It is a rocky bold headland of Anatolia, north-west of the northern extremity of the gulf of Adramyti, the antient Adramyttium, and between the islands of Lesbos, now Mitylene, and Tenedos, which preserves its antient name. The cape, which is scarcely twelve miles distant from the northern extremity of Lesbos, is in 39° 30′ N lat., and 26° E. long. Doctor Chandler calls it a promontory of Mount Ida, and it is indeed a shelving continuation or off-shoot of that celebrated mountain mass, the numerous tops of which are seen in the distance. The [illegible] line of coast from the head of the gulf of Adramyti [illegible] Babà is very rocky and steep, and inland [illegible] cliffs there runs a continued chain of moun-

By reference to the [illegible] ally increase in elevation as they recede is the portico or ground approach the summits of Mount Ida. the buildings B C D fairly [illegible] the long level of the plain feet, and it is adorned [illegible] contrast, for it is so flat with their pedestal when [illegible] a short distance at sea, it looks like a mere line nearly all the way from Cape Babà to the promontory of Sigeum and the Hellespont Projecting from Cape Babà there is a curious group of small islets, called antiently, from their number, Hecatonnesoi, or the Hundred Islands, but named by the modern Greeks Muskonisi Six leagues to the north of the Cape, and in the Trojan plain, are the ruins of the antient city of Alexandria Troas, and about four leagues to the south, and standing upon a bold hill facing the sea and Lesbos, are the more important remains of the antient city of Assos.

A small town, called by the same name, and sometimes, by the Franks, St. Mary's, stands on a shelving point of Cape Babà, immediately above the sea. It contains a mosque and a half-ruined castle: the dwelling-houses, occupied by Turks and Asiatic Greeks, are built of unbaked brick, and are mean in the extreme In front of the town of Babà there is a little port formed with massive fragments of rock, but it is only capable of receiving the small country fishing-boats, and even they are not safe in it during gales from the south or west. Vessels bound to the Hellespont, or Dardanelles, and Constantinople, frequently come to anchor in the roadstead under shelter of the Cape during the prevalence of the Etesian or northern winds, but great care is necessary to guard against any sudden and violent change of weather, by which they would be exposed to the dangers of a rocky lee-shore and of a narrow sea. The town of Babà was formerly the seat of a considerable manufacture in steel, and the sword-blades and knives made there were highly esteemed by the Turks. Though the trade has declined, certain yataghans and large knives, like the *couteaux de chasse*, and said to be of superior quality, are still manufactured there. The chief employment of the inhabitants is pastoral,—the wild, uncultivated hills, rising like the downs on the south coast of England from the sea, afford good pasture for one part of the year, and at the other the inhabitants conduct their flocks to the acclivities of Mount Ida The voyager, passing between the island of Lesbos and the main, may often see their broad tailed sheep grazing among the ruins of the once large and prosperous city of Assos. The neighbouring country abounds in extensive woods, or rather copses, of valonea oak (the *Quercus ægilops*,) a dwarfish tree, seldom exceeding five or six feet in height. The large cups that contain the acorns of this species of oak are well known in commerce, they are used for tanning, and form a principal article of export from all this part of Turkey. The few of the inhabitants of Babà who attend to this branch of trade carry their valonea (as the product is commercially termed) to a port in the gulf of Adramyti, where it is either shipped at once on board of European vessels, which have repaired thither expressly, or it is put into country craft, which carry it to Smyrna, where it is sold, and then re shipped in European vessels for Italy, England, and other countries.

BABEL [See BABYLON.]

BAB-EL MANDEB is the name of the straits by which the Red Sea or Arabian Gulf is joined to the bay of Aden and the Indian Ocean It is formed by two projecting angles of the Asiatic and African continents, or, more precisely, the two angles of Arabia and Abyssinia. From the Arabian shores a cape of moderate height projects, which, on all our maps and charts, is called likewise Cape Babel Mandeb, the much more elevated land on the African side runs in a straight line. Opposite Cape Babel-Mandeb the coast of Abyssinia may be distant upwards of fifteen or sixteen miles, and here both continents approach nearest one another and form the straits. Within the straits, but much nearer to the Arabian shores, is an island, called in Arabic Perim: this name is also adopted on our maps. The strait to the east of this island is called the Little Strait, and that to the west of it the Large Strait. The Little Strait is most frequented by vessels, on no other account but because its moderate depth allows anchorage, if circumstances render it necessary. The depth here varies from nine to fourteen fathoms; on one small shoal it is only seven fathoms. This strait is four miles wide, but contracted by shoal water extending from the Cape of Babel-Mandeb to a small island about a mile from it, called Pilot Islet. The island of Perim, is rocky and low, with a gentle declivity from the middle towards the extremities. It is barren and uninhabited. On the S W. side it has an opening into an excellent harbour or cove, which affords shelter against nearly every wind, and a good anchorage in from four to six or seven fathoms water. This island is from four to five miles

long. The Large Strait is from nine to ten miles wide, and to the south of it, near the coast of Africa, are eight small islands, or rather rocks, called the Eight Brothers. In the midst of the strait no soundings are found with a hundred fathoms of line; but close to the Eight Brothers, along the coast of Abyssinia and near the Island of Perim, the depth of the sea varies from sixteen to thirty fathoms. The Eight Brothers are of moderate height, rocky and barren. Cape Babel-Mandeb (12° 40′ N. lat.) projects a great way from the main land, which here is low, so that when seen from a distance it has the appearance of an island. It rises to no great height, but is rocky and scraggy on its southern side, and extremely barren.

The currents are commonly very strong in this strait, but they vary in direction according to the prevailing winds. [See RED SEA.]

The name Babel-Mandeb, which in Arabic signifies 'the gate of tears,' seems to apply properly to the straits; and the appellation might naturally arise in consequence of the dangers to which small and light vessels are exposed in a narrow sea, surrounded by rocky shores, and subject to frequent gusts of wind. But this name appears on our maps and charts to be given with less propriety to the Cape, which probably has some different name among the natives. (Niebuhr, Lord Valentia, Capt. Horsburgh.)

BABER or BABUR, with his complete name ZAHIR-EDDIN MOHAMMED BABER, the celebrated founder of the Tatar, or, as it is often improperly called, the Mogol empire in Hindustan, was born on the sixth of Moharrem, A. HEG. 888 (14th February, 1483). His father, Sultan Omar Sheikh Mirza, a great-great grandson of the celebrated Timur, or Tamerlane, was sovereign of Ferghâna, a province situated on both sides of the river Sirr, the Jaxartes of the antients. The revenues of this province, according to a remark made by Baber himself, may suffice, without oppressing the country, to maintain three or four thousand troops. Baber was in his twelfth year when his father died (9th of June, 1494). He succeeded in securing possession of his paternal dominions, though opposed by his paternal uncles, Ahmed Mirza, the sultan of Samarcand and Bokhara, who, after a short and unsuccessful campaign, died in the middle of July, 1494; and by Mahmud Mirza, the sovereign of Badakhshan, who, after the death of Ahmed, succeeded him on the throne of Samarcand, but died, after a short reign, in January, 1495. Baber was equally successful in rescuing the towns of Asfera and of Khojend from the aggression of other hostile neighbours, but he was unable to recover the country and town of Uratippa, which had likewise formed part of his father's dominions. The history of Baber's reign till the twenty-third year of his age is a continuous succession of vicissitudes, in which we find him alternately conquering and losing Samarcand, Andijan, Khojend, and other places in or near his paternal dominions. In the year 1503, Sheibâni Khan, a descendant of Chengiz Khan by his eldest son, Tushi or Jûjikhan, the sovereign of Kipchak, conquered not only Samarcand and Bokhara, but also the countries of Ferghâna and Uratippa; and Baber, after wandering for nearly a year as a fugitive among the mountains that separate Ferghâna from Hissar and Karatigin, quitted his native country and resolved to try his fortune in Khorasan (1504), which was at that time held by Sultan Hussain Mirza, a powerful and distinguished prince of the family of Timur. With less than three hundred followers, and only two tents, Baber crossed the river Amu, or Oxus, a little above Termez. He did not receive from Sultan Hussain Mirza the support which he had anticipated; but a number of Mogols in the service of Khosru Shah, one of his opponents, who held Hissar, Khutlan, Kundez, and occupied Badakhshan, quitted the service of that chief, and, by declaring for Baber, forced Khosru Shah himself to submit to him. Thus strengthened, Baber marched towards Kabul, which was surrendered to him after a short siege (October, 1504). He allowed the Afghan governor and the garrison to depart in safety, and divided the country of Kabul among those chiefs who had lately entered his service.

In the month of January of the ensuing year (1505) Baber resolved on an irruption into Hindustan. From Kabul he advanced straight towards Kohat, a town situated S.W. of Attok, which he plundered. He then marched in a southern direction between the western bank of the Indus and the Mehter [illegible] mountains, as far as the tomb of Pir Kanu (probably near Dera Ghazi Khan), in lat. 29° 50′), and hence, without having crossed the Indus, he turned westward, passed over the mountains, and returned by lake Ab-istâdeh and Ghazni to Kabul.

In 1506 Sultan Hussain Mirza died, and the state of affairs in Khorasan rendered Baber's presence, during the greater part of that year, a matter of necessity. The succeeding year also was nearly consumed in repelling the Uzbeks, who infested Kabul and Khorasan by their incursions, and by the capture of Kandahar, which two Afghan noblemen, Shah Beg and his younger brother Mohammed Mokîm, refused to surrender. It was not till September that Baber could set out on another march against Hindustan, which was again unsuccessful, owing to the opposition of the predatory Afghan tribe between Kabul and Lemghan.

Of Baber's proceedings during the next eleven years (1508-1519), owing to a defect in his autobiographic memoirs, our information is imperfect. In 1510, the death of his old enemy Sheibâni Khan seemed to open to him a hope of recovering the dominions of his forefathers. In the succeeding year he undertook an expedition, by which he gained possession of Hissar, Bokhara, and Samarcand; but soon after, an invasion of the Uzbeks under Mohammed Timur Sultan, the son of Sheibâni Khan, brought him into imminent danger, and, unable to preserve the conquests which he had made, he returned to Kabul (probably in 1515).

In 1519 Baber undertook another expedition with a view to conquer Hindustan. He now for the first time crossed the Indus, probably a little above Attok (17th February, 1519), but soon re-crossed it, having taken a few places, and appointed governors in them. The next invasion, in 1524, in which he conquered and burnt Lahore, brought him beyond the Setlej, as far as Sirhind, and gave him a permanent footing in the Penjab. But the overthrow of the Afghan dominion in Hindustan was decided by the expedition which Baber undertook in 1525. On the 16th of December of that year he passed over the Indus; then marching along the skirts of the Himâlaya, and crossing the rivers Behut and Chenab, he advanced straight to Sialkot (December 29), passed over the Ravee and Beyah, and took the Afghan fort of Milwat (January 5, 1526), where he left a governor and garrison. Upon reaching Dûn, Baber resolved to march at once against Sultan Ibrahim Lodi, the Afghan sovereign, in whose possession the throne of Delhi and the dominions of Hindustan at that time were. Advancing gradually by the towns of Sirhind, Ambâla, and Shâhâbâd, he crossed the Jumna by a ford near Sirsaweh, and reached Panipat (April 12), a town famous for several important battles fought near it, and situated about fifty miles N.W. from Delhi. Here Sultan Ibrahim, with his army, encountered him on the 21st of April, but was completely defeated and killed in the battle. This victory decided the conquest of Hindustan: for although there were many little principalities in the hills, yet the Afghan government, which extended from the Indus to Behar, was the only one of importance. Baber immediately despatched detachments to occupy the two principal cities, Delhi and Agra; the latter town he himself entered on the 10th of May, and took up his residence in Sultan Ibrahim's palace, while his son Humâiûn marched eastward against two Afghan chiefs who had assembled an army of forty or fifty thousand men. They were defeated and dispersed. The provinces of Sambal and Rohilcand, and the celebrated fortress of Gwalior, were in the possession of Baber before the end of the year. In the succeeding year (February, 1527) Baber won a decisive victory at Biana, near Agra, over Rana Sanka, the most powerful of the native Hindu princes, in consequence of which he assumed the epithet of *Ghâzi*, *i. e.* 'the victorious in war against infidels;' and early in 1528 the fortress of Chanderi, on the river Setwa, south of Agra, was taken, after a long and desperate resistance on the part of the Hindu garrison.

The conquests of Baber, from the Indus to the mouths of the Ganges, were made so rapidly, and they comprehended so wide an extent of countries and so great a variety of population, that to cement them into a firm union would have required a much longer reign than what he himself was destined to enjoy. Even his son Humâiûn could but with difficulty maintain possession of these extensive territories; and it was not till the reign of Baber's grandson, Akbar, that [illegible] administration [illegible] the whole empire was establi[illegible]

Towards the conclusion of his reign, Baber endeavoured to promote the prosperity of his empire. He made or improved public roads, with resting-places for travellers at suitable distances; he caused the land to be measured, in order to have a scale whereby to fix the taxation; he planted gardens, and introduced fruit-trees from abroad into the several provinces of Hindustan; and he ordered a regular line of post-houses to be built from Agra to Kabul.

Baber died at the Charbagh, near Agra, on the 26th of December, 1530, and was succeeded by his son Humâiûn on the throne of the empire, which is commonly, though improperly, called that of the Moguls. Baber was undoubtedly one of the most distinguished sovereigns that ever sat upon an Asiatic throne. In his character we perceive an uncommon portion of benevolence, good-nature, and frank gaiety; and joined with this, he possessed the leading qualifications both of a statesman and a military commander in a high degree. Of his literary accomplishments and general information, the autobiographic memoir written by himself in his native language, the Jaghatai Turki, gives us a most advantageous idea: there is perhaps no other work of this kind in existence which affords a more accurate notion, not only of the life, character, and way of thinking of its author, but of the whole aspect of his age, and of the persons and objects surrounding him. (See *Memoirs of Zehir-ed-din Muhammed Baber*, translated by John Leyden and William Erskine, London, 1826, 4to.)

BABER ISLAND. [See MOLUCCAS.]

BABIA'NA, a genus of Cape plants belonging to the natural order Irideæ. It derives its singular name from *Babianer*, by which the Dutch colonists call these plants, because their round subterranean stems are greedily eaten by baboons. It differs from Gladiolus in its round, leather-coated seeds, and in the flowers having the tube of Ixia, and from Ixia in their having the irregular limb of Gladiolus. Fourteen or fifteen species are known, among which are some of the handsomest of the Cape bulbous plants, as they are commonly though incorrectly called. Of these all have narrow, plaited, sword-shaped leaves, rising from a cormus which is covered with rigid, netted, brown scales; this part, which is sometimes called the bulb, sometimes the root, but which is in reality a short, underground stem, is propagated by one or more young buds near its point, which shoot up at the season of growth, feed upon the old cormus till they have sucked it quite dry, and by that time become new cormi themselves elevated upon the point of the original one. In this way the underground cormi gradually rise towards the surface of the earth, and afford an instance of vegetable progression which by some has been adduced as extremely remarkable, but which is in fact, if the phenomenon be rightly considered, precisely analogous to the progression of the stem of a tree into the air by the formation of fresh branches year after year.



[Babiana sulphurea.]

A, a diminished figure of the flowering stalk; B, one of the cormi, showing how they gradually ascend by being seated vertically upon the remains of cormi of former years.

The flowers of babiana are yellow, purple, and even scarlet, of considerable size, and extremely handsome. They are produced in perfection, provided the plants are so cultivated as to be exposed abundantly to air, light, warmth, and moisture, when in a state of growth, and preserved cool and dry while in a state of repose. It is in the plains of the Cape of Good Hope that these plants are found, where they are exposed for two or three months, at the most, to rain; and where, during the remainder of the year, they are buried beneath a soil so dry, that even succulent plants themselves can scarcely contrive to exist upon it. The following species will illustrate the genus.

Babiana sulphurea, one of the commonest species, grows about a foot high, with oblong plaited, hairy leaves, and a one-sided spike of four or five flowers. The latter are about two inches long, of a pale sulphur-yellow, with a short sky-blue tube and eye; the segments are oblong, slightly wavy, nearly equal in size, and spreading nearly equally round three short erect stamens. The style and stigma are sky-blue: the latter very narrow and channelled.

BABINGTON, WILLIAM, a distinguished physician, was born in June, 1756, at Portglenon, a village on the Ban, near Coleraine, in the north of Ireland. His father was a clergyman, who, having a numerous family, determined that one of his sons should be brought up to medicine: his choice fell upon William, and he, after acquiring the usual elements of general education, was apprenticed to a medical practitioner at Londonderry. After the end of his apprenticeship, he proceeded to London to complete his medical education. Being provided with an introduction to Mr. Frank, surgeon to Guy's Hospital, he became his dresser at that institution. Thence he went to Haslar Hospital, and afterwards, for a short time, to Winchester Hospital. Having made a most favourable impression with respect to his talents, application, and steadiness during his studies at Guy's Hospital, he was, upon the occurrence of a vacancy in the office of apothecary, summoned from Winchester to enter upon the duties of that situation, at an earlier age than it is customary to intrust so responsible an office to any one. Soon afterwards he was selected to assist Dr. Saunders at the hospital in his lectures on chemistry. This contributed to render his merits known beyond the walls of the hospital; and while still there, by the advice of some friends, he purchased the valuable collection of minerals which had belonged to the Earl of Bute—the finest perhaps which at that time existed in England. This had much influence in determining him to the study of mineralogy. Upon obtaining possession of his purchase, he proceeded to class the minerals and to catalogue them. He also divided the cabinet into several portions, which he disposed of at different times. In 1795 he published a *Systematic Arrangement of Minerals, founded on the joint consideration of their chemical, physical, and external characters*, reduced to the form of tables: which was preceded by a smaller work.

In 1797 he resigned his office at Guy's Hospital, and having obtained the degree of Doctor of Medicine, he commenced private practice as a physician in Freeman's Court, Cornhill, in the City of London. Soon after he was elected one of the physicians to Guy's Hospital, where he has continued to lecture on chemistry, in which duty he was joined by Mr. William Allen. In 1799 he published his *New System of Mineralogy*, which may be considered a continuation of the former work. In 1802 he published a *Syllabus of the Course of Chemical Lectures*. In 1796, previous to leaving Guy's Hospital, he had become a Fellow of the Medical Society of London, and exerted himself zealously to promote the advancement of the science of medicine—which is the chief object of that society. Having removed from Freeman's Court to Basinghall-street, he became the neighbour and friend of Dr. Lettsom, the great supporter and benefactor of the Medical Society, whose efforts in its behalf were ably seconded by Dr. Babington,

From this time he rose rapidly in public estimation as a physician, and his practice having greatly increased, he removed to a large house in Aldermanbury. To this house, in 1807, 'with a view to enable Count Bournon, of whom he had been a pupil, to publish his elaborate monograph on the carbonate of lime, Dr. Babington invited a number of gentlemen those most distinguished for their zeal in the prosecution of mineralogical knowledge. A subscription was opened, and the necessary sum readily collected. This object having been accomplished, other meetings of the same gentlemen took place, for the joint purpose of friendly intercourse and mutual instruction. From such small beginnings sprang the Geological Society; and among the names of those by whose care and watchfulness it was supported during the early period of its history, that of Dr. Babington must always stand conspicuous.' (From Mr. Greenough's *Address to the Geological Society*, 1834.) In 1822 he was elected president of the society, having been vice-president in 1810 and the three subsequent years. He enriched the museum and library with liberal donations, and the Transactions of the society contain several papers by him. The interest which he took in the objects of this society and the collateral sciences continued unabated to the latest period of his prolonged life, and ever willing to consider himself, though so fit to instruct others, as a learner, he became a pupil of Mr. Webster, after he had quitted the office of president of the Geological Society. He exhibited a similar zeal in respect to chemistry, by attending the course of chemical lectures at the London University in the year 1832. Indeed to the close of his life, in addition to the discharge of his duties as a physician, practical chemistry, especially pharmacy, with geology, and vegetable physiology, continued to engage his attention as much as in his earliest years.

It deserves to be recorded that his acquaintance with the physical appearance, as well as chemical qualities, of minerals led him to suspect that a substance sent from Cornwall by Dr. Wavel, and which was at first considered as a species of *zeolite*, was a mineral not before described, a suspicion which was confirmed by the analysis of Davy. (See *Transactions of Royal Society*, 1805.) It has accordingly been designated *Wavellite*.

The interests of medicine were not neglected by Dr. Babington; and in order to promote its advancement, he was the chief means of instituting, in the immediate neighbourhood of his residence, a society called the Hunterian, for the purpose of friendly meetings and the discussion of medical topics. He also became a member of the Medico-Chirurgical Society; and the first volume of their Transactions contains a paper by him: *A Case of Exposure to the Vapour of burning Charcoal*. 1809.

While his mornings were devoted to the practice of his profession, his evenings were dedicated to study, or social intercourse with individuals distinguished by their attainments or love of science. He was the personal friend of nearly all the most eminent scientific men of his day, by whom he was as highly appreciated as he was justly esteemed by the public as an able and enlightened physician.

The Royal Society admitted him as one of its fellows, and the Royal College of Physicians testified their sense of his character by electing him from among the ranks of the licentiates into the number of the fellows. In 1831, being desirous of lessening the fatigues attendant upon his extensive practice, he removed from Aldermanbury to Devonshire Street, Portland Place, where, however, he continued to visit, as their physician, a few of his attached friends and patients. During the prevalence of the fatal influenza in the spring of 1833, he zealously attended his patients, till at last, from exposure to the evening air after being present at a crowded scientific meeting, he was attacked by that disease, and on the 29th of May expired at his house in Devonshire-street, in the seventy-seventh year of his age. The general expression of regret which followed the announcement of Dr. Babington's death proved the estimation in which he was held. Not only his numerous private friends, but all the public scientific bodies to which he belonged, lamented the loss which they had sustained in the most feeling and honourable manner.

As a man, he acquired the affection and esteem of all among whom he moved, with whom he had occasion to transact business, or to whom he gave his professional attendance, by his kind and gentle manners and the warmth of his heart. Ever eager to promote merit, and to render men of talent more useful to the public by being brought out of inferior to more elevated situations, he was above all petty jealousies, and dreaded no increase of rivals. It was the proud but just eulogy pronounced upon him by a contemporary, that 'he never rose by depressing others.' On the contrary, his liberal and generous conduct towards the junior members of his profession forms one of the brightest parts of his character. One instance of this, among many others, was his conduct towards the late Dr. Gooch, who bore testimony to the virtues of his benefactor in a dedication at once just, elegant, and affecting. (See Gooch, *On Diseases peculiar to Women*, 1829.)

As a scientific man, without any ostentation, he yet greatly contributed, during nearly half a century, to the promotion of many branches of physical science, as well as medical, and gave an impulse to the study of mineralogy and geology, the beneficial effects of which will long be felt. Though he had a large family, few of them outlived him; but among the number are two sons, both members of the medical profession.

For further particulars we refer to the forthcoming *Memoir of his Life and Writings*, by his son-in-law, Richard Bright, M.D., Fellow of the Royal College of Physicians, &c.

BABIROUSSA is sometimes called the horned hog by travellers, from the great length and curved form of its upper tusks, which pierce through the upper lip and grow upwards and backwards like the horns of the ruminantia: it is a species of wild hog which inhabits the woods of Java, Celebes, and others of the larger Sunda isles. From its more slender proportions and longer limbs, compared with other species of the same genus, this animal has been likewise called the stag-boar, and was not altogether unknown to the antients; at least it seems probable that it is the *Sus Tetraceros* of Ælian (lib. xviii., cap. 10), and is plainly referred to by Pliny (lib. viii., cap. 52). For its description and history see HOG.

BABOON (*Cynocephalus*, Cuvier), in zoology, a genus of quadrumana, or four-handed mammals, which forms the last link in the chain that unites the simiæ, properly so called, with the lower animals. The zoological or technical name of this genus, Cynocephalus, is a Greek word employed by Aristotle and other antient writers to designate the common species of Egypt and Arabia, the *C. hamadryas* of modern writers, and is plainly derived from the marked resemblance which the head and face of these animals bear to those of a dog, and which, in truth, constitutes the most distinctive character of the genus. The origin of the common name *baboon* is a subject of greater doubt. Skinner and other British etymologists are content with deriving it from our vernacular word *babe*, without considering that the German *pavian*, the Dutch *baviaan*, the French *babouin*, and the Italian *babbuino*, are manifestly but so many different modes of writing the same term. A more probable origin of all these terms appears to be the Italian babbuino, from which is likewise derived, according to the opinion of Aldrovandus, the vulgar Latin word papio, applied by the writers of the fifteenth and sixteenth centuries to these animals, and which is itself a diminutive of the common Italian word babbo, which answers to our papa.

Though the baboons differ widely from the other groups of quadrumanous animals, and may be readily distinguished at sight even by those who are not much in the habit of observing them, yet it has been found not a little difficult to form such a simple definition of the genus as will comprehend all the species properly belonging to it, and also distinguish them from those which appertain to the proximate genera, *Macacus* and *Cercopithecus*. This difficulty, which is indeed common to most of the genera of quadrumana, arises from the fact that the zoological characters of these groups consist not in actual differences of organic structure so much as in the different degrees or modifications of the same structure which each exhibits, and which, though readily seized by the eye, are not so easily conveyed to the ear. Yet notwithstanding this difficulty of defining their limits and nature, the modifications in question are of the utmost importance in studying the history and structure of these animals, and exercise a powerful influence on their habits. The most marked and prominent of the characters which more immediately distinguish the baboons from the other simiæ, consists in the great pro-

longation of the face and jaws, and in the truncated form of the muzzle, which gives the whole head a close resemblance to that of a large dog, and from which, as already observed, the Greeks and Romans very appropriately denominated them *Cynocephali*, or dog-headed monkeys. In the ordinary quadrumana, which have the head and face round as in the human species, the nose is flat, and the nostrils situated about half-way between the mouth and the eyes, the whole bearing no unapt resemblance to that of a man who has lost the greater part of his nose: but in the baboons this organ is prolonged uniformly with the jaws; it even surpasses the lips a little in length, and the nostrils open at the end of it exactly as in the dog. Here there is a marked difference in form and development from what we observe in the apes and other higher groups of quadrumana. The great length of the face detracts from the size of the skull; the organs of mastication are strongly developed to the prejudice of the brain and intellectual functions; the facial angle, which has been generally regarded as a pretty accurate measure of the mental capacity, is reduced to 30°, whilst it is never less than 45° in the monkeys, and among the apes amounts even to 60° or 65°; and the character of the baboons, as might be readily suspected from these indications, is less docile and intelligent than that of the kindred genera. To the same prolongation of the face, and preponderance of the anterior part of the head, is to be attributed, at least in a great measure, the fact that the baboons less frequently assume an erect posture than any of the other quadrumana, and are less capable of maintaining it for any length of time. The weight of the long nose, to which the small size of the skull forms but a very inefficient counterbalance, fatigues the muscles of the neck, and constantly tends to make the animal seek for support upon all fours, as may be observed in a dog or a bear; and in fact the baboons are but very little superior to these animals in the facility with which they maintain themselves in an upright posture.

The compressed and robust form of the body, and the short, muscular, and powerful nature of the limbs, are other characters which broadly distinguish the baboons, and exercise a very sensible influence upon their habits and economy. Generally speaking, the quadrumana are of a slender and active make, with long arms and legs, which adapt them for climbing and residing among the branches of trees; but the shortness of their limbs, and the weighty and powerful make of their bodies, whilst they do not entirely exclude the baboons from grasping and climbing trees, nevertheless render the woods and forests a less agreeable habitat to them than the precipitous sides of rocky mountains, where they live in large families, and climb among the cliffs with great ease and security. Their whole habits, indeed, as well as their organic structure, approximate these animals to the ordinary quadrupeds; the great development of their organs of smell, the position of the nostrils, which are more conveniently placed for the exercise of that function than in the other quadrumana; the robust make of the extremities and the equality of their length, their gait, their habitat, the size and power of their canine teeth, and the nature of their food, all indicate their inferiority to the apes and monkeys. And as the habits of animals are necessarily derived from their organization, as the functions of an instrument depend upon the component parts of its structure, in proportion as the baboons are degraded in the scale of nature by their organic conformation, in the same degree do they participate in the intellectual inferiority, and, if we may be allowed the expression, in the moral debasement, of the common quadrupeds. Still, with the general outlines of the organization, they preserve much of the character of the other quadrumana; but it is only the worst part of the character of the apes and monkeys which is exhibited in the baboons;—it is their malignity still further heightened by an increase of physical force, without their playful curiosity,—their disgusting approach to humanity, without their gentleness and docility.

In their native mountains, the ordinary food of the baboons is berries and bulbous roots; but in the vicinity of human habitations they make incursions into the cultivated fields and gardens, and destroy a still greater quantity of grain and fruits than they carry away with them. In well-inhabited countries, where they are likely to meet with resistance, their predatory incursions are usually made during the night, and travellers assure us that, taught by experience of the risks to which they expose themselves during such expeditions, they place sentinels upon the surrounding trees and heights to give them timely warning of the approach of danger; but in wilder and more solitary districts, where the thinness of the population and the want of fire-arms place them on some degree of equality with the inhabitants, they make their forays in the open day, and dispute with the husbandman the fruits of his labour. 'I have myself,' says Pearce, in his *Life and Adventures in Abyssinia*, 'seen an assembly of large monkeys (baboons) drive the keepers from the fields of grain, in spite of their slings and stones, till several people went from the village to their assistance, and even then they only retired slowly, seeing that the men had no guns.' Some travellers even assert that if the troop happens to be surprised in the act of pillaging, the sentinels pay with their lives for their neglect of the general safety; but however this may be, it is certain that individuals are frequently met with which exhibit marks of ill usage from their companions, and which even sometimes appear to have been expelled from their society. Others assure us that the troop sometimes forms a long chain, extending from the vicinity of their ordinary habitation to the garden or field which they happen to be engaged in plundering, and that the produce of their theft is pitched from hand to hand till it reaches its destination in the mountains. By this means they are enabled to carry off a much larger booty than if every individual laboured for his own peculiar benefit; but notwithstanding this attention to the general interest, each takes care, before retiring, to fill his cheek pouches with the most choice fruits or grains which he can procure, and also, if not likely to be pursued, to carry off quantities in his hands. After these expeditions the whole troop retire to the mountains to enjoy their booty. They likewise search with avidity for the nests of birds, and suck the eggs; but if there be young, they kill them and destroy the nest, as, notwithstanding the evident approximation of their organization and appetites to carnivorous animals, they are never known to touch a living prey in a state of nature, and even in captivity will eat no flesh but what has been thoroughly boiled or roasted. In this state we have seen various baboons enjoy their mutton bone, and pick it with apparent satisfaction, but it was evidently an acquired habit, like that of drinking porter and smoking tobacco, which they had been taught by the example of their keepers.

Of all the quadrumana, the baboons are the most frightfully ugly. Their small eyes deeply sunk beneath huge projecting eyebrows, their low contracted forehead, and the very diminutive size of their cranium, compared with the enormous development of the face and jaws, give them a fierce and malicious look, which is still further heightened by their robust and powerful make, and by the appearance of the enormous teeth which they do not fail to display upon the slightest provocation. The fierceness and brutality of their character and manners correspond with the expression of their physiognomy. These characters are most strongly displayed by the males; but it is more especially when, in addition to their ordinary disposition, they are agitated by the passion of love or jealousy, that their natural habitudes carry them to the most furious and brutal excess. In captivity, they are thrown into the greatest agitation at the appearance of young females. It is a common practice among itinerant showmen to excite the natural jealousy of their baboons by caressing or offering to kiss the young females who resort to their exhibitions, and the sight never fails to excite in these animals a degree of rage bordering upon phrensy. On one occasion, a large baboon of the species which inhabits the Cape of Good Hope (*Cynocephalus porcarius*) escaped from his place of confinement in the 'Jardin des Plantes' at Paris, and far from showing any disposition to return to his cage, severely wounded two or three of the keepers who attempted to recapture him. After many ineffectual attempts to induce him to return quietly, they at length hit upon a plan which was successful. There was a small grated window at the back part of his den, at which one of the keepers appeared in company with the daughter of the superintendent, whom he appeared to kiss and caress within view of the animal. No sooner did the baboon witness this familiarity, than he flew into the cage with the greatest fury, and endeavoured to unfasten the grating of the window which separated him from the object of his jealousy. Whilst employed in this vain attempt, the keepers took the

opportunity of fastening the door and securing him once more in his place of confinement. Nor is this a solitary instance of the influence which women can exert over the passions of these savage animals: generally untractable and incorrigible whilst under the management of men, it usually happens that baboons are most effectually tamed and led to even more than ordinary obedience in the hands of women, whose attentions they even appear to repay with gratitude and affection. Travellers sometimes speak of the danger which women run, who reside in the vicinity of the situations which these animals inhabit, and affirm that the negresses on the coast of Guinea are occasionally kidnapped by the baboons, and carried off to their fastnesses: we are even assured that certain of these women have lived among the baboons for many years, and that they were prevented from escaping, by being shut up in caves in the mountains, where, however, they were plentifully fed, and in other respects treated with great kindness. It is to be observed, however, that these accounts rest upon authority which is by no means unexceptionable; credible and well informed modern travellers do not relate them, and even their older and more credulous predecessors give them only from hearsay.

In addition to the mental and physical characters already mentioned, the baboons, besides the great development of their canine teeth, are distinguished by having a fifth tubercle upon the posterior molar of the under jaw, in which respect they differ from the apes and cercopitheci, and resemble the macaci and semnopitheci. They are furnished with large callosities and capacious cheek pouches, and their tails, always shorter than those of the macacks and monkeys, are carried erect at the root, and then hang pendant perpendicularly, like that of a horse which has not been truncated. Those species which have very short tails carry them upright and erect. The bones of their cheeks, also, are protuberant and form large swellings on each side of the nose; and though this character is more strongly marked in the mandrill and drill than in the other species, yet all exhibit it in a greater or less degree. It is only since the labours of MM. Geoffroy and F. Cuvier have developed the true generic characters of the different groups which compose the family of quadrumana, that we have become acquainted with the geographical distribution of those animals, and the habitats of the different genera. We have thus learned that the quadrumana of the African continent are as distinct from those of Asia in their zoological characters, as they are in the localities which they inhabit. In fact, among upwards of fifty species of simiæ belonging to the old world, there are only two known instances of an Asiatic genus occurring in Africa, or of an African genus occurring in Asia. One of these instances is even doubtful, since the animal to which it refers, the common magot or Barbary ape, though generally considered as a macack, is in reality an intermediate species between that genus and the baboons, which it resembles equally in its habitat as it does in its powerful and muscular frame, and in its general habits and character, and from which it only differs in the comparative shortness of its face and the less truncated form of its nose. These, to be sure, are very essential characters in the true baboons; but in all departments of zoology we find intermediate species which partake, as it were, equally of the characteristic forms and organization of two or even three conterminous genera, and which it is often impossible to include in either, without a considerable relaxation in the strict import of their respective definitions. The other instance to which we have alluded regards a real species of baboon, the *Cynocephalus hamadryas* of authors, which is found in Asia and Africa, and which forms the only indisputable instance of any quadrumanous animal being common to both those continents. In other respects the baboons are a strictly African genus; they inhabit all the great mountain ranges of this continent, from the shores of the Mediterranean to the Cape of Good Hope, and are capable of supporting a much lower degree of temperature than any of the other quadrumana. The lofty mountains of Samen in Abyssinia, and the bleak and desolate range of the Sneeuwberg in South Africa, are both tenanted by numerous troops of these animals, which appear to prefer the more rigorous climate of these elevated regions to the hot and sultry forests of the lower plains. Fischer, the most recent writer upon mammalogy, enumerates eleven different species of baboons, but it is evident that some of those which he describes are the females or young of other species; and in fact the most judicious naturalists, those who describe from their own original observations, do not reckon more than five or six. The following are very distinctly marked, and have been universally admitted.



[The Chacma. C. porcarius.]

1. The *Chacma* (*C. porcarius*, Desmarest). The colour of this species is a uniform dark brown, almost black, mixed throughout with a dark green shade, deepest on the head and along the ridge of the back, and paler on the anterior part of the shoulders, and on the flanks. The hair over the whole body is long and shaggy, more particularly on the neck and shoulders of the males, where it forms a distinct mane; each hair is of a light grey colour for some distance from the root, and afterwards annulated throughout its entire length, with distinct rings alternately black and dark green, sometimes, though but rarely, intermixed with a few of a lighter and yellowish shade. The green predominates on the head more than on other parts; the face and ears are naked, as are likewise the palms of the hands and soles of the feet; the interior surfaces of the arms and thighs are but thinly covered with hair, which is long and of a uniform dark brown colour; the hair on the toes is short, bristly, and uniformly black; the neck and shoulders of the male are furnished with a mane of long shaggy hair, which is wanting in the females and young, and the cheeks of both sexes have small whiskers directed backwards, and of a greyish colour. The tail is rather more than half the length of the body, and is terminated by a tuft of long black hair; the skin of the hands, face, and ears, is of a very dark violet-blue colour, with a paler ring surrounding each eye; the whole of the upper eyelids are white, as in the Mangabey (*Cercopithecus fuliginosus*); the nose projects a little beyond the upper lip, the nostrils are separated by a small depression or rut, as in the dog and other carnivorous animals, and the callosities are less strongly marked than in most other species of this genus. In the adult animal the muzzle is extremely prolonged in comparison with the skull, which is proportionally contracted and flattened: the young on the contrary have the region of the brain much larger in proportion to the length of the face, the head considerably rounder, and in form resembling that of the adult monkeys (*cercopitheci*).

The Chacma, so called from the Hottentot word *T'Chackamma*, the aboriginal name of this baboon in South Africa, is one of the largest species of the present genus, and when full grown, is equal in size, and much superior in strength, to a common English mastiff. This animal inhabits the mountains throughout the colony of the Cape of Good Hope, and associates in families more or less numerous. They are still found on the Table Mountain above Cape Town, though they do not exist in such numbers as they appear to have done formerly. Still, however, they pay occasional visits to the gardens at the base of the mountains, and with such skill and caution, that even the most watchful dogs, as we are assured by Professor Lichtenstein, cannot always prevent them. 'Although,' he remarks, 'Kolbe somewhat exaggerates the regular and concerted manner in

which their robberies are carried on, yet it is very true that they go in large companies upon their marauding parties, reciprocally to support each other, and carry off their plunder in greater security.' Their common food consists of the bulbous roots of different plants, particularly of the *babiana* [see BABIANA, p. 226]; these they dig up with their fingers and peel them with their teeth; and heaps of the parings are frequently seen near the large stones upon which the baboons delight to sit and look round them. In ascending the kloofs or passes in the mountains of South Africa, which are frequently steep, narrow, and dangerous, travellers often disturb troops of these animals which have been sunning themselves on the rocks: if not attacked, they scamper up the sides of the mountains, yelling and screaming; but if fired at and wounded, they no sooner get beyond the range of the gun, than they commence rolling and throwing down stones, and otherwise resenting the injury. A full-grown chacma is more than a match for two good dogs, and though there is no animal which hounds pursue with so much fury, yet the boors of the interior would rather set their dogs upon a lion or panther than upon one of these baboons.

2. The *Derrias* (*C. hamadryas*, Linnæus), the most celebrated of all the baboons, and probably the only species of this genus known to the antients, inhabits the mountains of Arabia and Abyssinia, and grows to the size of a large pointer, measuring upwards of four feet when standing erect, and two feet and a half in a sitting posture. The face of this species is extremely elongated, naked, and of a dirty flesh colour, with a lighter ring surrounding the eyes; the nostrils, as in the dog, are separated by a slight furrow; the head, neck, shoulders, and all the fore part of the body as far as the loins, are covered with long shaggy hair; that on the hips, thighs, and legs, is short, and, contrasted with the former, has the appearance of having been clipped, so that the whole animal bears no unapt resemblance to a French poodle. The hair of the occiput and neck is upwards of a foot in length, and forms a long mane which falls back over the shoulders, and at a distance looks something like a full short cloak. The whiskers are broad and directed backwards, so as to conceal the ears; their colour, as well as that of the head, mane, and fore part of the body, is a mixture of light grey and cinereous, each hair being marked with numerous alternate rings of these two colours; the short hair of the hips, thighs, and extremities is of a uniform cinereous brown colour, rather lighter on the posterior surface of the thighs than on the other parts; a dark-brown line passes down the middle of the back, the hands are almost jet black, and the feet are rusty brown. The tail is about half the length of the body, and is carried drooping as in other baboons; it is terminated by a brown tuft of long hair; the callosities are large and of a dark flesh colour; the palms of the hands and soles of the feet dark brown. The female when full grown is equal to the male in point of size, but differs considerably in the length and colour of the hair. This sex wants the mane which ornaments the neck of the male, and is covered over the whole body with short hair of equal length, and of a uniform deep olive-brown colour, slightly mixed with green. The throat and breast are but sparingly covered with hair, and the skin on these parts, as well as on the face, hands, and callosities, is of a deep tan colour. Hemprich and Ehrenberg, who have given a very complete history and description of this species in their excellent work entitled *Symbolæ Physicæ*, now in process of publication, compare the female derrias to a bear, whilst the copious mane which adorns the fore quarters of the male gives to that sex much of the external form and appearance of a small lion. The young of both sexes resemble the female, and the large whiskers and manes of the males only begin to make their appearance when the animals arrive at their full growth and mature age, that is, when they have completed their second dentition. At this period they undergo as great a change in their mental propensities as in their physical appearance. While young they are gentle, docile, and playful, but as soon as they have acquired their full development, they become sulky, malicious, and [illegible].

This species inhabits Arabia and Abyssinia, but is not found either in Egypt or Nubia, though its figure is often sculptured on the antient monuments of both these countries. Hemprich and Ehrenberg found large troops of them in Wadi Kanun and in the mountains near the city of Gumfud in the country of the Wahabees, as well as in the mountains above Arkeeko on the Red Sea; and we learn from Salt and Pearce that they are extremely common upon all the high lands in Tigre. The travellers above-mentioned found troops of a hundred and upwards in the neighbourhood of Eilet, in the chain of the Taranta. These were usually composed of ten or a dozen adult males, and about twenty adult females; the remainder of the troop was made up of the young of the four or five preceding years. When seen at a distance approaching a small stream for the purpose of quenching their thirst, they bore a close resemblance to a flock of wild hogs; and it was observed that the young ones always led the van, and that the old males brought up the rear, probably for the purpose of having the whole family continually under their immediate observation. They did not appear to pay the slightest attention to the Gallas and Abyssinians, but when the European travellers approached, whom they probably distrusted from the appearance of their fire-arms, the old males abandoned their station in the rear, and placed themselves between the troop and their pursuers, so that it was found very difficult to procure specimens of either the females or the young. When they first observed the travellers approaching, they all stood up on their hind feet for the purpose of examining them; the old males, having driven away the females and young animals, remained in this position till the near approach of the party compelled them also to retire, when the whole troop scampered up the sides of the mountains, making them resound with their shrill clamour. The Arabic name of this animal is *robah* or *robba;* the Abyssinians call it *derrias*, according to Pearce's orthography, or *karrai*, according to the spelling of Hemprich.

The name of this species in the antient Ethiopic or Geez, the learned language of the Abyssinians, is *tot* or *tota*. The figure of this animal, in a sitting posture, is common upon the antient monuments of Egypt and Nubia; small metal images of it have been dug up among the ruins of Memphis and Hermopolis, and mummies containing the embalmed body of the animal are still found among the catacombs. Strabo, indeed (p. 812), in mentioning Hermopolis as the centre of the adoration paid to the *cynocephalus*, says that the Babylonians in the vicinity of Memphis paid divine honours to the *cepus:* yet though the geographer makes use of very different names, and though these, in reality, apply to very different animals, there is good reason to believe that they both refer, in the present instance, to the same species; no quadrumanous animal is ever found represented upon the sacred monuments of antient Egypt, except the baboon, nor have the images of any other species ever been dug up in searching for antiquities. One or two instances, indeed, occur in the representations of profane subjects, such as the procession of a returning conqueror, in which monkeys (*cercopitheci*) are introduced, as for instance the painting discovered at Thebes by the late Mr. Salt, and represented by Minutoli (tab. xii., fig. 9), in which a monkey is represented riding on the neck of a camelopard; but this was manifestly intended merely to fix the locality of the country or people whose subjection the triumph was meant to commemorate, and by no means indicates a participation in the divine honours which were paid to the baboon. Neither does the female ever appear to be represented as an object of worship; all the figures and images seem to be those of males, as is proved by the mane which covers the neck and shoulders, and which gives a fulness to the fore part of the body in this sex which is wanting in the other.

3. *The common baboon* (*C. papio*, Desmarest) is of a uniform yellowish brown colour, slightly shaded with sandy or light red upon the head, shoulders, body, and extremities; the whiskers alone are of a light fawn colour; the face, ears, and hands are naked and entirely black, the upper eye-lids white, and also naked, and the tail about half the length of the body, but not terminated by the tuft which distinguishes it in the last two species. The hair of the occiput and neck is rather longer than that on the neck and shoulders, but is neither so long nor so thick as to give it any resemblance to the mane of the chacma or derrias; neither is the face of the present species so much prolonged as in these two animals; the nose, however, is advanced rather beyond the extremity of the lips, and has the nostrils opening as in the other baboons; the cheeks are considerably swollen immediately below the eyes, after which the breadth of the face contracts suddenly, giving the muzzle or nose the appearance of having been broken in that situation by

a heavy blow. The whiskers are not so thickly furnished as in the species already described; they are, however, equally directed backwards, but do not conceal the ears, which are black, naked, and less regularly oval than in man and the generality of the simiæ. The under parts of the body, the breast, belly, abdomen, and inner face of the arms and thighs, are very sparingly furnished with long hairs of a uniform brown colour. The females and young differ in no other respect from the adult males, except in being of a lighter and more active make.

This species inhabits the coast of Guinea, and is that most commonly seen about the streets, and in menageries and museums. In youth it is gentle, curious, gluttonous, and incessantly in motion, smacking its lips quickly, and chattering when it wishes to beg contributions from its visiters, and screaming loudly when refused or tantalized. As it grows older, however, it ceases to be familiar, and assumes all the morose look and repulsive manners which characterize the baboons in general. The specimen observed by Buffon was full grown, and exhibited all the ferocity of disposition and intractability of nature common to the rest of its kind. 'It was not (says he) altogether hideous, and yet it excited horror. It appeared to be continually in a state of savage ferocity, grinding its teeth, perpetually restless, and agitated by unprovoked fury. It was obliged to be kept shut up in an iron cage, of which it shook the bars so powerfully with its hands as to inspire the spectators with apprehension. It was a stout-built animal, whose nervous limbs and compressed form indicated great force and agility; and though the length and thickness of its shaggy coat made it appear to be much larger than it was in reality, it was nevertheless so strong and active that it might have readily worsted the attacks of several unarmed men.'



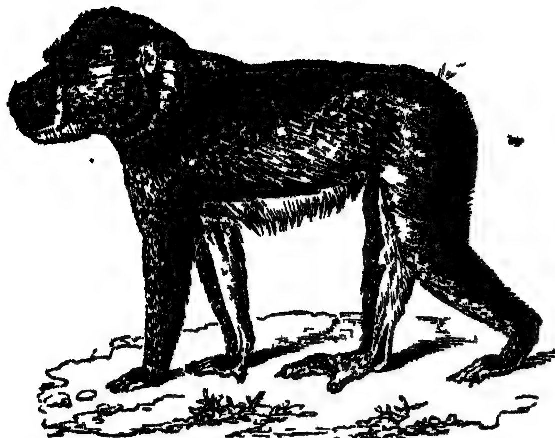
The Mandrill (C. Mormon and C. Maimon).

4. *The Mandrill* (*C. Mormon* and *C. Maimon*, Linnæus) is the largest of the whole genus, and may be readily distinguished from all the other baboons by the enormous protuberance of its cheeks, and the bright and variegated colours which mark them, as well as by its short upright tail. The full-grown mandrill measures above five feet when standing upright; the limbs are short and powerful, the body thick and extremely robust, the head large and almost destitute of forehead, the eye-brows remarkably prominent, the eyes small and deeply sunk in the head, the cheek-bones swollen to an enormous size, and forming projections on each side of the nose as large as a man's fist, marked transversely with numerous alternate ribs of light blue, scarlet and deep purple, the tail not more than a couple of inches in length, and generally carried erect; the callosities large, naked, and of a blood-red colour. The general colour of the hair is a light olive brown above, and silvery grey beneath, and the chin is furnished underneath with a small pointed yellow beard. The hair of the forehead and temples is directed upwards so as to meet in a point on the crown, which gives the head a triangular appearance; the ears are naked, angular at their superior and posterior borders, and of a bluish black colour; and the muzzle and lips are large, swollen, and protuberant. The former is surrounded above with an elevated rim or border, and truncated like the snout of a hog,—a character which we have observed in no other baboon, and which leads us to suspect that the mandrill is the species that Aristotle incidentally mentions by the name of Chœropithecus (χοιροπιθηκος), (*Hist. Anim.* lib. ii. cap. 2,) and which may have been brought into Egypt or Greece by the merchants who kept up a regular intercourse between Egypt and the countries of the interior. There are other considerations which give a strong degree of probability to this conjecture. The short, indeed almost tuberculous, tail of the mandrill, for instance, would lead Aristotle to compare it with the ape or pithécus (πιθηκος), rather than with the other simiæ, all of which have tails of considerable length; and the truncated form of the snout would readily suggest its similarity to the hog (χοίρος). We are aware that the chœropithecus of the Greek philosopher has been generally identified with the common baboon or the derrias; but neither of these species possesses any character which justifies that supposition; and besides, the derrias is indisputably allowed to be the species designated by the much more appropriate name of cynocephalus (κυνοκέφαλος.) Nor does the mandrill differ much in its general form and appearance from the pithecus of Aristotle, which was the common magot or Barbary ape (*Macacus inuus*): there is no very great difference in the size of these animals, their colour is very nearly the same, both are equally remarkable for the powerful make of their bodies, and the sinewy character of their short stout limbs; and in fact the only striking difference which exists between them is the prolonged, truncated, swinish snout of the one, and the round head and short face of the other. Thus we can very satisfactorily account for both members of the compound name employed by Aristotle: nor can an objection be fairly taken to the approximation which we have here made of his chœropithecus to the mandrill of Guinea, on account of the extremely limited knowledge which the antient Greeks possessed of the western coasts of Africa; since we know that they were well acquainted with other animals from the same or even a more remote locality; such, for instance, as the gnu (*Antilope gnu*), which is clearly the catóblepas of antient writers, and the pecasse or buffalo of the Gold Coast.

The females and young mandrills differ from the adult males in the shorter and less protuberant form of the muzzle, which is moreover of a uniform blue colour; the cheek-bones have little or no elevation above the general plane of the face, nor are they marked with the longitudinal furrows which give the other sex so singular an appearance, at least they are far from being so prominently developed. It is only indeed when they have completed their second dentition that these characters are fully displayed in the males, and that the extremity of the muzzle assumes that bright red hue by which it is so remarkably distinguished.

The mandrill is often mentioned by travellers, and bears the different names of *smitten*, *chorras*, *boggo*, *bdrris*, &c., according to the language or dialect of the tribes in whose territories it has been observed. It is described as being amazingly powerful and mischievous, but many traits of its character and habits have been confounded with those of the chimpanzee (*Pithecus troglodytes*), a very different animal. Its mental character and habits do not differ sensibly from those of the other baboons, except that it becomes, in advanced age, still more morose and lascivious. Those which have been observed in a domestic state are generally remarked to have had a strong taste for spirituous and fermented liquors; a remarkably fine individual, which was long kept at Exeter Change, and afterwards at the Surrey Zoological Gardens, drank his pot of porter daily, and evidently enjoyed it: it was a most amusing sight to see him seated in his little arm-chair, with his quart pot beside him, and smoking his short pipe with all the gravity and perseverance of a Dutchman. In a state of nature, his great strength and malicious character render the mandrill a truly formidable animal. As they generally march in large bands, they prove more than a match for any other inhabitant of the forests, and are even said to attack and drive the elephants away from the districts in which they have fixed their residence. The inhabitants of these countries themselves are afraid to pass through the woods unless in large companies and well armed; and it is said that the mandrills will even watch their opportunity when the men are in the fields, to plunder

the negro villages of every thing eatable, and sometimes attempt to carry off the women into the woods.



The Drill (C leucophæus).

5 *The Drill* (*C leucophæus*, F Cuvier) is a species only recently admitted by the most judicious modern naturalists, though long since described by Pennant, and after him by various other writers It is likewise a native of the coast of Guinea, and, like the mandrill, is distinguished by a short, erect, stumpy tail, scarcely two inches in length, and covered with short bristly hair The cheeks are not so protuberant as in that species, neither are they marked with the same variety of colours, and the size and power of the animal are much inferior The colours of the body bear some resemblance to those of the mandrill, but they are more mixed with green on the upper parts, and are of a lighter or more silvery hue beneath The head, back, sides, outer surface of the limbs, a band at the base of the neck, and the backs of the fore hands, are furnished with very long fine hair, of a light brown colour at the root, and from thence to the point marked with alternate rings of black and yellow, the two last colours alone appearing externally, and by their mixture giving rise to the greenish shade that predominates over all the upper parts of the head and body The under parts of the body are equally covered with long fine hair but of a uniform light-brown or silvery grey colour, and more sparingly furnished than on the back and sides, the whiskers are thin and directed backwards, there is a small orange-coloured beard on the chin, the hair on the temples is directed upwards, and, meeting from both sides, forms a pointed ridge or crest on the crown of the head, and the tail, short as it is, is terminated by a small brush The face and ears are naked and of a glossy black colour like polished ebony, the cheek bones form prominent elevations on each side of the nose, as in the mandrill, only not nearly so large, neither are they marked with the same series of alternate ridges and furrows, nor with the brilliant and varied colours, which render that species so remarkable, the palms of the hands and soles of the feet are also naked in the drill, and of a deep copper colour; the colour of the skin, when seen beneath the hair, is uniform dark-blue, and that of the naked callosities bright red The female differs from the male by her smaller size, shorter head, and much paler colour; and the young males exhibit the same characters up to the time of their second dentition

The wood baboon, the cinereous baboon, and the yellow baboon of Pennant, are all manifestly referable to this species, and differ only from the difference of the age and sex of the specimens from which he took his description The habits and manners of the drill have not been observed in a state of nature, nor do we find the animal itself indicated in the works of any of the travellers which we have consulted. In its native country it is probably confounded with the mandrill, at least by casual and passing observers, but it is frequently brought into this country, and is well known as a menagerie animal. Its habits in confinement do not appear to differ in any material respect from those of its congeners. Those individuals which we have observed in the gardens of the Zoological Society, and in other collections, were all of immature age and growth, and consequently exhibited little of the fierce and intractable spirit of the adult baboons of other species. They were in general silent, sedate, and sufficiently gentle, when not tantalized with food or otherwise strongly excited, but the gloomy ferocity of their natural temper was, nevertheless, gradually beginning to show itself in those which had acquired a certain size and strength, and there can be little doubt that the adult males exhibit all the repulsive and malicious character of the kindred species.

Some writers have enumerated two or three other species of baboons, but they are for the most part fictitious, or refer to different ages or sexes of one or other of those which are here described The *C babouin* of Desmarest, for instance, is confidently declared by Hemprich and Ehrenberg to be the young male of the derrias, *C hamadryas*.

BA'BRIAS, or BA'BRIUS, according to Suidas, wrote a collection of Æsopian fables in ten books, which he turned from prose into choliambics [See ÆSOP and CHOLIAMBIC] Avianus, in the preface to his fables, states that the fables of Babrius were contained in two volumes, by which he means rolls of papyrus The ten books mentioned by Suidas were divisions of the fables themselves, such, for example, as the twelve books of La Fontaine's fables From the manner in which Avianus mentions Babrius in the preface to his Latin fables, and from the occurrence of some verses of Babrius in the Homeric Lexicon of Apollonius, who probably lived in the Augustan age, or somewhat earlier it may be conjectured that Babrius flourished within half a century before that period All other circumstances relating to him are however unknown, nor would any of his writings have come down to us if they had not been used by the transcribers and *rédacteurs* in the middle ages, as the foundation of their versions of Æsopian fables In some cases the copyist was fortunately contented to transcribe, with only a few variations the metrical original of Babrius, and thus some of the choliambic fables of this poet have been preserved in the form of prose in different manuscript collections of the Æsopian fables A few fables have likewise been preserved accidentally in an entire form, and several fragments are cited in the Lexicon of Suidas Collections of the extant fables and fragments of this poet have been made by several scholars (See Tyrwhitt's *Dissertatio de Babrio*, Schneider's *Fabulæ Æsopiæ*, Vratislav, 1812, Berger, *Babrii Fabularum Choliambicarum libri tres*, Bishop Blomfield in the *Museum Criticum*, vol i, Mr Burges in the *Classical Journal*, vols xxv and xxvi, and an article in the *Philological Museum*, vol i pp 280-304, which last contains a detailed account of the versification of Babrius, and an amended edition of his fables) The language of Babrius is extremely terse and elegant, and his style of narration lively, pointed, and simple, and even the small number of his fables which have been rescued from different manuscripts (about twenty), are, in our opinion, sufficient to put him on a level with La Fontaine, the best fabulist of modern times It is much to be regretted that no manuscript of his fables should have been preserved, which were evidently extant till a comparatively recent period

BABUYA'NES ISLANDS A cluster of small islands and islets forming part of the Philippines, and lying to the north of Luzon or Maconia, the most considerable of the group Babuyan, the most northern of the cluster, is in 19° 43′ N lat and 122° E. long, and is about 25 miles in circumference Four others of about the same size are situated as follows —

Calayan	19° 28′ N. lat.	121° 30′ E. long.
Camiguen	19° 2′	121° 56′
Dalapiri	19° 15′	121°
Fuga	19°	121° 30′

The remainder are little better than rocky islets. The inhabitants of the five which are peopled carry on trade with the Chinese, whom they supply with gold, wax, cassia, and coco-nuts

BA'BYLON, HISTORY. The Babylonians belonged to the Semitic race of nations, their language was an Aramaic dialect, and differed little from the common Syriac. The existence of their city and empire can be traced back to an epoch of the remotest antiquity. In the tenth chapter of Genesis, Babel is mentioned as having formed part of the dominions of Nimrod, and Josephus (*Ant. Jud.* i. 6) calls him the founder of the town of Babylon. The building of the city and tower of Babel, and the subsequent confusion of tongues (*Genes.* xi. 1—9) are among the earliest facts in the history of mankind which we find recorded in the Hebrew

scriptures. We learn from Josephus, Eusebius, and the Armenian chronicle of Moses of Chorene, that the Chaldæans had a similar tradition to account for the origin of the different languages now spoken by men; but it is difficult to determine whether this tradition was independent of, or whether it was derived from, that recorded in the book of Genesis. Diodorus (ii. c. 7), on the authority of Ctesias, attributes the foundation of the city of Babylon to the celebrated queen Semiramis, and when we read of immense numbers of workmen (two hundred myriads) from all parts of her empire, whom she employed in the execution of her design, we are almost involuntarily reminded of that part of the Hebrew narrative, which describes 'the children of men' building the tower, until 'the Lord scattered them abroad from thence upon the face of all the earth, and they left off to build the city.' (*Genes.* xi. 8.) The epoch at which the city and the tower were founded cannot be determined with precision: according to the calculation usually adopted, it happened about two hundred years after the deluge.

Herodotus (i. c. 184) says that the building of Babylon was the work of several successive sovereigns: but among them he distinguishes the two queens, Semiramis and Nitocris, to whom the city was indebted for extensive embankments along the Euphrates, and for many other improvements. According to Diodorus (ii. 1, &c.), the Assyrian king Ninus, assisted by an Arabian chief, Ariæus, conquered and killed the then reigning king of Babylon, and made himself master of his dominions: the town of Babylon did not then exist, but there were other flourishing towns in the country. His wife Semiramis, who succeeded him, founded Babylon, and made it her residence. She enclosed it with brick walls of great height and thickness, joined the two banks of the river by a bridge (besides a subterraneous passage or tunnel), built a royal palace on each side, and erected in the middle of the town a high temple in honour of the god Belus. This is usually supposed to have happened about the year 2000 before our æra.

Respecting the history of Babylon under the successors of Semiramis we are left in almost entire ignorance. After the overthrow of the Assyrian monarchy and the death of Sardanapalus (B.C. 888), Belesis, a skilful priest and astrologer, assumed the government of the Babylonian state. (Diodor. ii. c. 24, &c.) He was succeeded on the throne by his son Nabonassar, and the regal dignity became hereditary in his family. The æra of Nabonassar, beginning the 26th of February, 747 B.C., is supposed to have been so called, because the Chaldæans, during the reign of this king, might have begun to avail themselves in their astronomical observations of a moveable solar year, which they might either have invented themselves, or received from the Ægyptians. This æra was, however, never used in common life, and for all ordinary practical purposes the Chaldæans counted by lunar years. (See Ideler, *Lehrbuch der Chronologie*, p. 89.)

We know nothing of the four immediate successors of Nabonassar. The fifth, Merodach-Baladan, or Berodach-Baladan, the son of Baladan, is mentioned in the Old Testament (2 *Kings* xx. 12, 13; *Isaiah* xxxix. 1) as being on friendly terms with Hezekiah, king of Judah, at a time when both dreaded the ascendancy of Sennacherib, the king of Assyria. Soon afterwards the Assyrian monarch, Esarhaddon, incorporated Babylon into his empire. But towards the latter part of the seventh century before our æra, we again find Babylon under Nabopolassar (627—604 B.C.) an independent and powerful state, and as such it continued till the period of its destruction by Cyrus. In the battle of Circesium (604) the independence of the Babylonian state was vindicated against the ambitious designs of Nekos, king of Egypt, who had sent an army to conquer it. Babylon had its bright epoch in the reign of Nebuchadnezzar, or Nabuchodonosor (604—561 B.C.), who increased his dominions by the conquest of Palestine, Tyrus, and Jerusalem (2 *Kings* xxv. 1; 2 *Chron.* xxxvi. 17), and added to the fortifications as well as to the ornaments of the city of Babylon. He subdued the Idumæans (the Edomites) and the Ammonites, and his empire extended from the Caucasian mountains to the African desert. It is surprising that the name of Nebuchadnezzar is apparently unknown to Herodotus, especially as we are told by Josephus, that it was familiar to Megasthenes and other Greek historians. Heeren supposes that the queen Nitocris, mentioned by Herodotus (i. 185), who contributed much to the improvement of the town of Babylon, may have been the contemporary, and perhaps the wife of Nebuchadnezzar. But after the death of Nebuchadnezzar, the empire began rapidly to fall into decay. His son Evilmerodach (561—559) permitted king Joacim, of Juda, to return home out of his captivity at Babylon, whither Nebuchadnezzar had brought him. Evilmerodach was killed in the second year of his reign by his brother-in-law Neriglissar, who occupied the throne during the four succeeding years (559—555). He was followed by his youthful son Laborosoarchod, or Labassoarascus, who had been only nine months on the throne when a conspiracy broke out in which he was dethroned and killed. Nabonnedus (the Labynetus of Herodotus, i. 74—77, and the Belshazzar, or Balthasar, of the Old Testament) followed him, and reigned seventeen years (555—538 B.C.), at the end of which he was attacked and defeated by Cyrus (*Dan.* v. 30, 31), and Babylon became subject to the Persian empire. [See CHALDÆANS.]

Cyrus did no injury to the town of Babylon: on the contrary, he made it his winter-residence, and the third capital town of his kingdom, after Susa and Ecbatana. But in consequence of a revolt under Darius I., the walls and gateways of the town were broken drown, and the population soon decreased in such a degree that a supply of women from the surrounding country became requisite. (Herod. III. 159.) Xerxes carried away the golden statue of Belus (Zeus, Herod. I. 183), and Alexander the Great found the temple of that deity in ruins. (Arrian. *Exp. Alex.*, vii. 17.) Soon afterwards Seleucus founded the town of Seleucia in the neighbourhood of Babylon, which further contributed to the decrease of the latter. At the time of Diodorus and Strabo, the greater part of Babylon lay in ruins, and there were corn-fields within its antient precincts. Curtius says, that at his time only one-fourth of the town was inhabited: Philo and Josephus observe, that a considerable proportion of the inhabitants were Jews.

BA'BYLON, an antient city of Assyria. Mr. Rich, following Major Rennell in his Geography of Herodotus, is of opinion that the site of Babylon is near Hillah, a town situated on the Euphrates, which was built out of the ruins of the city, A.D. 1101: it is about forty-eight miles south of Bagdad. This opinion is founded on, 1. the latitude of the place as given by Abulfeda, Ebn Haukal, Edrisi, and other oriental geographers, compared with the situation of Babylon as recorded by classical writers; 2. the stupendous magnitude and extent of the ruins at and near Hillah; 3. its vicinity to the bituminous fountains of Is, or Hit, mentioned by Herodotus as being eight days' journey above Babylon, upon a stream of the same name, which falls into the Euphrates; and 4. the circumstance of the whole surrounding district having been, from the remotest historical time to the present day, distinguished by the name of Babel. Ebn Haukal, who wrote in the tenth century, calls it Babel. (Maurice's *Observations on Mr. Rich's Memoir.*) Niebuhr has fixed the latitude at 32° 28′ 30″.

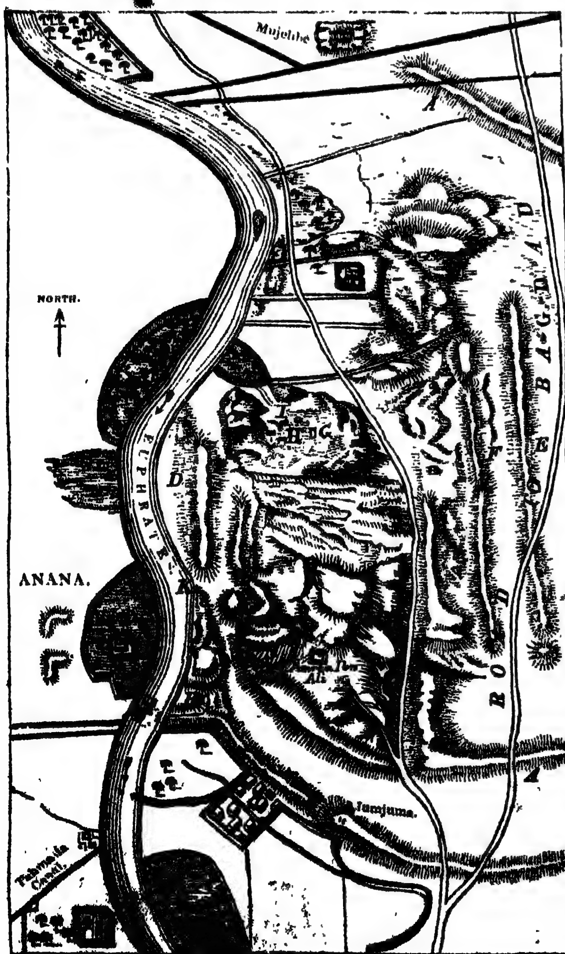
Herodotus, who visited Babylon, says it 'was the most celebrated city of Assyria. The kings of the country made it their residence after the destruction of Nineveh. The city, situated in a great plain, was of a square form, each side 120 stadia in length, which makes the circuit 480 stadia. It was so magnificent that none could be compared with it. It was, moreover, encompassed with a wide ditch, deep, and full of water. Besides this there was a wall, 50 royal cubits thick, and 200 high. As soon as the earth was dug out to form the ditch, it was made into bricks, which were burnt in furnaces. Hot bitumen was used to cement them together, and at every thirty layers of bricks a layer of reeds was placed. The sides of the ditch were first built in this manner, and then the walls above them; and upon the edges of the wall they erected buildings, with only one chamber, each opposite the other, between which there was space enough left for a chariot with four horses. In the wall there were a hundred gates made of brass, as well as the jambs and lintels. The Euphrates runs through the city, and divides it into two parts. Each wall forms an elbow, or angle on the river, at which point a wall of baked bricks commences, and the two sides of the river are lined with them. The houses were built of three and four stories. The streets were straight, and intersected by others which opened on the river. Opposite the end of the streets small gates of brass were formed in the walls which lined the river. By these gates there was a descent to the river, and there were as many gates as

there were transverse streets. The external wall served for defence; there was also an internal wall which was not less strong, but narrower.

'The centre of each of these two parts of the town is remarkable, the one for the palace of the king, of which the inclosure was large and well fortified; the other, for the place consecrated to Jupiter Belus, of which the gates were of brass, and in existence when Herodotus wrote. The sacred inclosure was a regular square, each side being two stadia; in the centre was a massive tower, one stadium in length as well as width, and above this tower was raised another, and above that again were raised others, until there were eight. An ascent, which winds round the towers on the outside, led up to them. About midway in the ascent there is a resting-place and seats, where those who ascend rest themselves; in the last tower is a large chapel, and in this chapel a large and magnificent bed, and near it a table of gold.

'A bridge was built by Nitocris, a queen of Babylon, to connect the two parts of the city divided by the Euphrates. The piers were formed of large hewn stones, and in order to fix them in the river the waters of the Euphrates were turned into a great excavation, leaving the bed of the river dry. It was at this time that the banks of the river were lined with the walls, and the descents to the river from the smaller gates were made. The bridge was built about the middle of the city, and the masonry was connected with iron and lead; during the day pieces of squared wood were laid from pier to pier, which were removed at night lest the inhabitants on each side should rob one another. When the bridge was finished, the waters of the Euphrates were turned back into their antient bed.' (Herodotus, i. 178-186.) The fragments of Berosus may be compared with the description of Herodotus. [See Berosus.]

The ruins of Babylon consist of mounds of earth formed by the decomposition of buildings, channelled and furrowed by the weather; the surface of them is strewed with pieces



[Plan from the Memoir on Babylon, by C. J. Rich.]

of brick, bitumen, and pottery. (Rich's *Memoir on Babylon*. See also the view of the ruins in Sir Robert Ker Porter's *Travels*.)

'The ruins of the eastern quarter commence about two miles above Hillah, and consist of two large masses or mounds, connected with and lying north and south of each other, and several smaller ones which cross the plain at different intervals. These ruins are terminated on the north by the remains of a very extensive building called the Mujelibè, from the south-east angle of which proceeds a narrow ridge or mound of earth wearing the appearance of having been a boundary wall, A A. This ridge forms a kind of circular inclosure, and joins the south-east point of the most southerly of the two grand masses.' (Sir Robert Ker Porter lays down these walls differently. See his plan, vol. ii. of his *Travels*.) 'The river-bank, on the south-west of the tomb of Amran, is skirted by a ruin (B), extending from K to B nearly 800 yards; it is, for 300 yards, at B, 40 feet perpendicular; a little above this is a piece of ground, D, formerly the bed of the river; here earthen vases with bones were found. From the east angle of the ruin B commences another mound, similar to that marked A, but broader and flatter; this mound is the most southerly of all the ruins.'* (Rich's *Memoir*.)

'On taking a view of the ruins from south to north, the first object that attracts attention is the low mound connected with the ruin E: on it are two small walls close together, and only a few feet in height and breadth. This ruin, which is called Jumjuma, and formed part of a Mohammedan oratory, gives its name to a village a little to the left of it. To this succeeds the first grand mass of ruins, which is 1100 yards in length and 800 in its greatest breadth; its figure nearly resembles that of a quadrant, its height is irregular; but the most elevated part may be about 50 or 60 feet above the level of the plain, and it has been dug into for the purpose of procuring bricks. Just below the highest part of it is a small dome, in an oblong inclosure, distinguished by the name of Amran Ibn Ali. On the north is a valley of 550 yards in length, the area of which is covered with tussocks of rank grass, and crossed by a line of ruins of very little elevation. To this succeeds the second grand heap of ruins, the shape of which is nearly a square of 700 yards' length and breadth, and its south-west angle is connected with the north-west angle of the mounds of Amran by a ridge of considerable height, and nearly 100 yards in breadth.' (Rich's *Memoir*.)

Mr. Rich considers this the most interesting part of the ruins of Babylon; and that the buildings here were far superior to those which are situated to the north-east. 'Not more than 200 yards from the northern extremity of this mound is a ravine, G, hollowed out by those who dig for bricks, in length 100 yards, and 10 feet wide by 40 or 50 deep. On one side of it a few yards of wall remain standing, the face of which is very clean and perfect, and appears to have been the front of some building. Under the foundations at the southern end an opening is made, which discovers a subterranean passage, floored and walled with large bricks laid in bitumen, and covered over with pieces of sandstone, a yard thick and several yards long; the weight above has been so great as to have given a considerable degree of obliquity to the side-walls of the passage; the opening is nearly seven feet in height, and its course is to the south. The superstructure over the passage is cemented with bitumen, other parts of the ravine with mortar, and the bricks have all writing upon them. The northern end of the ravine appears to have been crossed by an extremely thick wall of yellowish brick, cemented with a brilliant white mortar.' A little to the west of the ravine at H is the kasr or palace, by which appellation Mr. Rich designates the whole mass. (See the cut under the head of Babylonian Architecture.) It is a very remarkable ruin, and from its being uncovered and in part detached from the rubbish, is visible from a considerable distance, but so surprisingly fresh in its appearance, that it was only after a minute inspection that Mr. Rich was satisfied of its being in reality a Babylonian remain. 'It consists of several walls and piers, which face the cardinal points, eight feet in thickness; in some places ornamented with niches, and in others strengthened by pilasters and buttresses, built of fine burnt brick still perfectly clean and sharp, laid in lime-cement of such tenacity, that it is almost impossible to extract a

* Sir Robert Ker Porter, however, shows, in his plan of Babylon, a continuation of this wall from the tomb of Jumjuma to the river in a south-westerly direction.

brick whole. The tops of these walls are broken and may have been much higher; on the outside they have in some places been cleared nearly to the foundations, but the internal spaces formed by them are yet filled with rubbish, in some parts almost to their summit One part of the wall has been split into three parts, and overthrown as if by an earthquake; some detached walls of the same kind, standing at different distances, show what remains to have been only a small part of the original fabric; indeed it appears that the passage in the ravine, together with the wall which crosses its upper end, were connected with it Near this ruin is a heap of rubbish, the sides of which are curiously streaked by the alternation of its materials, the chief part of which, it is probable, was unburnt brick, as some were found here' Mr Rich did not find any reeds in the interstices of these bricks 'A little to the N N E of this ruin is the famous tree (I), which the natives called Athela, and which they maintain to have been flourishing in antient Babylon It stands on a kind of ridge; one side of its trunk, with verdant branches at the top, only remains the branches waving in the wind produce a melancholy rustling sound It is an evergreen, something resembling the lignum vitæ, and not common in Babylon A tree of the same kind is said to grow at Bassora' (Rich's *Memoir*)

E and F are two extensive mounds running from north to south

'A mile to the north of the Kasr or palace, five miles from Hillah, and 950 yards from the river bank, is a ruin called the Mujelibê meaning the *overturned* its shape is oblong and its height, as well as the measurements of its sides irregular The sides face the cardinal points the northern is 200 the southern 219 the eastern 182 and the western 186 yards in length, and the elevation of the south east or highest angle is 141 feet Two hundred years before when Della Valle saw it this building was 200 feet high and the base including the ruins of surrounding buildings about 700 feet on each side The west surface which is the least elevated is the most interesting on account of the appearance of building it presents Near the summit of it appears a low wall with interruptions built of unburnt bricks mixed up with chopped straw or reeds and cemented with clay mortar of great thickness having between every layer a layer of reeds, and on the north side are also some vestiges of a similar construction The south west angle is crowned by something like a turret or lantern the other angles* are in a less perfect state, but may originally have been ornamented in a similar manner The western face is lowest and easiest of ascent the northern the most difficult All are worn into furrows by the weather and in some places where several streams of rain water have united together these furrows are of great depth, and penetrate a considerable way into the mound The summit is covered with heaps of rubbish, in digging into some of which, layers of broken burnt brick cemented with mortar were discovered and whole bricks with inscriptions are sometimes found The whole is covered with innumerable fragments of pottery, brick, bitumen pebbles, vitrified brick or scoria, and even shells bits of glass, and mother of pearl In the northern face of the Mujelibê, near the summit, is a niche or recess high enough for a man to stand upright in, at the back of which is a low aperture leading to a small cavity, whence a passage branches off to the right, sloping upwards in a westerly direction till it loses itself in the rubbish' Mr Rich was informed that a human body was found here wrapped in a tight wrapper, partially covered with bitumen and inclosed in a coffin of mulberry wood Mr Rich was induced by this circumstance to excavate here, when, after digging into a shaft or hollow pier, sixty feet square, lined with fine brick laid in bitumen and filled up with earth, a brass spike some earthen vessels, and a beam of date tree wood, was found; one of the vessels was remarkably thin, and had the remains of fine white varnish on the outside After carrying on the excavation some way further, they discovered a narrow passage nearly 10 feet high, flat on the top, exhibiting both burnt and unburnt bricks, the former with inscriptions on them, and the latter laid with a layer of reeds between every row, except in one or two courses near the bottom, where they are cemented with bitumen. The hollow pier just alluded to, corresponds exactly to Strabo's description (p. 738) of the hollow brick piers which supported the hanging-garden (κρεμαστὸς κῆπος): in the hollow thus filled with earth, the largest trees grew.

It appears that the walls were lined with a fine burnt brick to conceal the unburnt bricks, of which the body of the building was principally composed there is a continuation of this passage to the eastward, choked up with earth Here Mr Rich discovered a wooden coffin containing a skeleton in high preservation Under the head of the coffin was a round pebble, attached to the coffin, on the outside, was a brass bird, and inside an ornament of the same material, which had apparently been suspended to some part of the skeleton A little further, the skeleton of a child was found, and Mr Rich was of opinion that the whole passage was occupied in a similar manner It may therefore be conjectured, that the Mujelibê was a great brick pyramid for the dead It may perhaps also have been used for an observatory

'About 70 yards to the north, and west of the Mujelibê, are traces of a very low mound of earth, which may have formed an inclosure round the whole

Mr Rich could not perceive any ruins on the western side of the Euphrates except a large ruin supposed to be the Tower of Belus and some trifling mounds called Anana near the bank of the river Sir R K Porter shows, in addition some extensive ruins between these By reference to the general plan in the preceding page, the reader will perceive traces of them two miles in extent which Porter has conjectured to be part of what he calls the lesser palace of Alexander an edifice about which there is no evidence in antient writers Further on is the modern village of Ibrahim Khalil and beyond this village is the great ruin supposed to be the Temple of Belus This is by far the most stupendous and surprising mass of all the ruins of Babylon 'It is situated about six miles to the south west of Hillah and is called by the Arabs Birs Nemroud and by the Jews Nebuchadnezzar's Prison Mr Rich describes it in the following terms The Birs Nemroud is a mound of an oblong form the total circumference of which is 762 yards At the eastern side it is cloven by a deep furrow, and is not more than fifty or sixty feet high but at the western side it rises in a conical figure to the elevation of 198 feet, and on its summit is a solid pile of brick thirty seven feet high by twenty eight in breadth diminishing in thickness to the top which is broken and irregular and rent by a large fissure extending through a third of its height It is perforated by small square holes disposed in rhomboids The fine burnt bricks of which it is built have inscriptions on them and so excellent is the cement which appears to be lime mortar that it is nearly impossible to extract one whole The other parts of the summit of this hill are occupied by immense fragments of brickwork of no determinate figure tumbled together and converted into solid vitrified masses the layers of brick being perfectly discernible These ruins stand on a prodigious mound, the whole of which is itself a ruin channelled by the weather, and strewed with fragments of black stone sandstone, and marble In the eastern part layers of unburnt brick but no reeds are to be seen In the north side may be seen traces of building exactly similar to the brick pile At the foot of the mound a step may be traced scarcely elevated above the plain exceeding in extent by several feet each way the true or measured base, and there is a quadrangular inclosure round the whole as at the Mujelibê, but much more perfect, and of greater dimensions At a trifling distance and parallel with its eastern face, is a mound not inferior to that of the Kasr in elevation but much longer than broad on the top of it are two koubbes or oratories round the Birs are traces of ruins to a considerable extent (Rich) There are numerous other mounds, some of considerable dimensions, besides those described But most of these appear to be beyond any possible limits of the antient city, and some undoubtedly belong to other towns, such for instance, are the ruins called by the natives Boursa or Brousa, four leagues below Hillah, on the same side of the river Mr Rich conjectures them to be the Borsippa of Strabo (p 739) and Barsita of Ptolemy

The greatest circuit allowed by antient writers to the walls of Babylon is 480 stadia Strabo (p 738) allows 385 Quintus Curtius says that there was pasture and arable land in the inclosure sufficient to support the whole population during a long siege; and Herodotus says that when Cyrus took Babylon, the inhabitants of the central parts of the town were not aware of it till some time after, 'owing to the magnitude of the city, as the Greek historian adds

It has been disputed whether the Mujelibê or the Birs

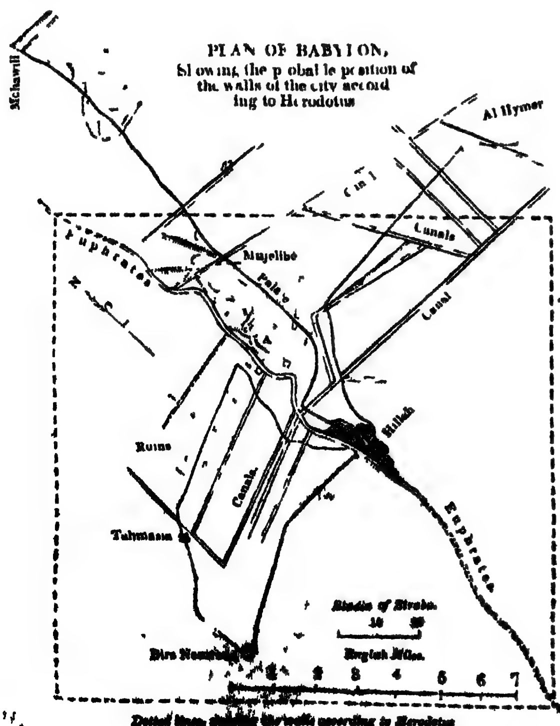
Nemroud is the remains of the Temple of Belus. Mr Rich thinks that, in some respects, the Mujelibè would answer sufficiently well to the accounts of the Hanging Garden, which, according to Strabo, formed a square of four plethra, or 400 feet, on each face, and stood upon the river from which it was supplied with water. Mr Rich, however, cannot decide, and leaves it to the learned, although it seems that he rather leans towards the opinion that the Birs Nemroud is the Temple of Belus. The difficulty has been increased from the circumstance of the walls of the city not having been discovered. For the opinion of travellers and geographers on the subject, see Niebuhr, D'Anville's *Geography*, Rennell's *Geography of Herodotus*, and the *Memoir* of Rich. See also the *Travels* of Sir Robert Ker Porter.

It seems exceedingly difficult to reconcile the descriptions of the antient historians with the actual site of the ruins. Presuming, however, that Herodotus is correct in the dimensions that he has given of the city walls, and that by the centre of the two quarters of the city divided by the Euphrates, is not meant literally the centre, it will not be so difficult to determine that the Birs Nemroud is the Temple of Belus; and at the same time we shall be able to lay down with some appearance of probability, the walls, on the modern plan of the actual site, as drawn by Sir Robert Ker Porter.



[West face of the Birs Nemroud, from Rich's Memoir on Babylon.]

It seems to be agreed by all travellers who have visited the spot, that the large masses of ruins on the east bank of the Euphrates are the remains of the fortified palace. The lines of defence surrounding it are apparent even at the present day, inclosing also the Mujelibè, which we think must be considered as part of the palace, or at least connected with the palace, and not as the Temple of Belus. The palace then (if we may suppose that Herodotus did not affect extreme accuracy in speaking of so extensive an



Dotted lines, showing the walls according to Herodotus

inclosure), might be said to be in the centre of the eastern quarter, and, according to the ruins still existing, on the banks of the Euphrates. The bridge also was said to be in the centre of the city, and it is probable that it was built near the palace, A. That part of the embankment, B, on Mr Rich's plan, which is 300 yards wide and 40 feet high, looks so much like part of the approach to the bridge, that we think it might be taken as one point on a straight line, crossing the Euphrates, and extending to, or nearly to, the Birs Nemroud; on this same line as an axis, and on the diagonal line of the Euphrates, we think the straight lines of the walls, forming a square according to the dimensions given by Herodotus, might be laid down, forming the angle or elbow at the extremities of the diagonal. Having constructed the walls on this theory, we shall find that the Euphrates divides the city into two quarters, and somewhere near the centre of one of them, on the banks of the river, we shall find an enormous palace, and in the other quarter we shall find the Temple of Belus, which, if not in the centre, was quite near enough for the historian's purpose, who describes the place in very general terms; or at any rate was as much in the centre of one quarter as the palace was in the centre of the other. For the purpose of explaining this view, we have made the accompanying plan, from the materials furnished by Mr Rich and Sir Robert Ker Porter. The only way we can account for the entire destruction of so much of the walls as was left by Darius, is by supposing that all the cities within a reasonable distance of Babylon, which have been built out of its ruins, have had their materials chiefly taken from the walls themselves. Some of the rubbish may have been thrown by the labourers into the ditch, and the rains of ages may have washed down the earth, and have completely obliterated all traces of the walls. Mr Buckingham states it is his opinion that the great ruin at Al Hymer is a part of the great wall of Babylon, between which and the Kasr, he says, that he saw mounds indicating the streets of the city with their transverse streets, and that there were none beyond this ruin. (Buckingham's *Travels in Mesopotamia*, vol. ii. chap. 10.)

BABYLONIAN ARCHITECTURE and ANTIQUITIES. The ruins of Babylon do not show any example of one entire building. Architectural combinations, with all their details, as in Egyptian, Grecian, and Roman architecture, cannot therefore be ascertained. The great Temple of Belus, as described in general terms by Herodotus, would have a pyramidal form, and would be similar, in some respects, to the Hindu temple at Tanjore, and the great Mexican temples, which, in the opinion of Mr Maurice, are copies of the Temple of Belus. (See Maurice's *Observations on Mr Rich's Memoir.*)

Buttresses and pilasters were component parts of Babylonian buildings, which were sometimes decorated with niches; the edifices generally were of bricks, either dried in the sun, or burnt in a kiln or furnace. Tiles were also painted and glazed for the purpose of decorating buildings, and a very fine sort of brick was employed to case thick walls built of common bricks or rubbish. These bricks were impressed with characters (see ARROW-HEADED CHARACTERS). The clay of which they were formed appears to have been mixed up with chopped straw or reeds. When baked or dry, they were laid in hot bitumen, sometimes in clay-mortar, and sometimes also in a fine lime-mortar. In the bridge over the Euphrates hewn stones were employed for the piers, and were firmly connected with iron and lead. They had no idea of constructing a coffer-dam, and, therefore, to lay the foundations of the piers, Nitocris turned the course of the river and laid the bed dry. On the piers rectangular beams of wood were placed horizontally: it does not appear, from the examination of those modern travellers who have taken the greatest pains to ascertain the fact, that the Babylonians understood the principle of the arch. A passage-way, described by Mr Rich, is covered with large pieces of sandstone laid horizontally.

A passage of Herodotus (i. 187) however might appear by implication to show that the great gate-ways in the city walls must have been arched, notwithstanding his statement about the jambs and lintels of the gates being of brass. He informs us that Nitocris was buried in the wall above one of the gateways; and that, owing to a superstitious feeling, that gateway was not used. It is not easy to suppose that the upper part of a large gateway, made in such a wall, was supported by beams or any other contrivance than that of the arch. If we take the testimony of Strabo, the antient

Babylonians actually did use the arch in forming the substructure of the Hanging Garden (see p. 738): whether the geographer reports the circumstance truly or not may be a question; but his words will bear only one meaning.

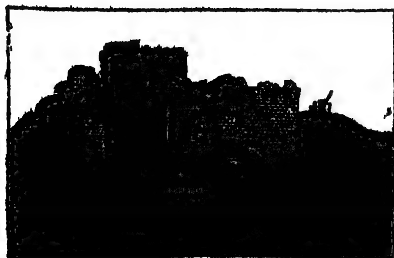
That their edifices were highly decorated there can be no doubt. The palace was surrounded by three vast walls, the external wall being 60 stadia in circumference, the second 40, and the third 30 stadia, which Diodorus informs us were ornamented with animals in relief, resembling life, richly painted in their natural colours on the bricks of which they were composed, and afterwards burnt in. (Diod. Sic. lib. ii.) Statues were also employed. Rich saw a colossal lion of white granite. The inhabitants, who excavate in the ruins, call all statues which they discover idols; and, as they are of no value to them, they throw them back among the rubbish while excavating for bricks.

The gates of the city were of brass or bronze, as well as the jambs and lintels, and the walls were built of a surprising height and of immense thickness. 'The Tower of Belus appears merely to have been astonishing from its size. It was inferior, in some respects, to the pyramids, and did not surpass either them, or probably the great temple of Mexico, in external appearance; and the ornaments of which Xerxes despoiled it convey an idea of barbaric richness rather than taste; all the sculptures which are found among the ruins, though some of them are executed with the greatest apparent care, speak a barbarous people. Indeed, with a much greater degree of refinement than the Babylonians seem to have been in possession of, it would be difficult to make anything of such unpropitious materials as brick and bitumen.' (Rich's *Memoir.*) For columns they used thick piers: on such piers the Hanging Garden was formed, and the floor laid on the piers was covered with stone (Curtius, v. 1), on which the earth was laid. Timber was scarce, and the wood-work of the houses, which were sometimes of three and four stories, was made of the date tree; round the posts reeds were twisted, on which a coat of paint was laid.

Semiramis is said to have made a tunnel under the Euphrates. The tunnel, according to Diodorus (whose authority is very small), was made like a vaulted passage, not by digging under the bed of the river, but by turning its course, as was done to lay the foundations of the bridge. (Diod. Sic. lib. ii.) It took 160 days to complete, and was 12 feet high and 15 broad; it served as a communication between one palace and the other, which were built, according to the same authority, at each end of the bridge. Semiramis is also said to have erected a stone obelisk 125 feet high. To increase the wonder of Babylonian works, it is added by some modern writers that all the stone used in Babylon came from Armenia. It is now well known that there is abundance of this material above Hit.

The bitumen used in the building of Babylon is not by any means so tenacious as the mortar. Mr. Rich thinks that lime cement was most generally employed.

In the British Museum there are many specimens of Babylonian bricks. Stones, elegantly engraved, and sealrings were in general use among the Babylonians. (Heeren, vol. ii. cap. ii. page 203.) Heeren is of opinion that these stones and the engraved cylinders served for signatures. These cylinders were made not only of clay, but of the hardest stones, and the Babylonians had brought the art of cutting these stones to a very high state of perfection. Heeren mentions a cylinder of jasper, and Sir R. K. Porter another of white agate. Sir R. K. Porter gives some representations of cylinders and Babylonian sculpture, as well as two curious coins, which were found in an earthen vessel fished up from the Euphrates close to the ruins of the palace: in it also were found some coins of Alexander and his successors. He considers one of the coins to be a curious *portrait* of an antient city, and perhaps of Babylon itself. The cylinders are engraved with hieroglyphics and groups of men and beasts, and combinations of beasts and men: they are exceedingly curious. (See plates 79 and 80, vol. ii. of Sir R. K. Porter's *Travels.*) There is also, in plate 80, a representation of a woman with a child, and two curious figures in bronze: the cylinders are all perforated.



[North face of the Kasr, from Rich's Memoir on Babylon.]

BACCA, the technical name by which botanists distinguish the fruit, commonly called a berry. While, however, the English word is familiarly applied to all soft fruits, of whatever construction internally, bacca is, strictly speaking, made use of to designate those fruits only which have a thin skin, are pulpy internally, and have several seeds finally lying loose in the pulpy mass; such are the gooseberry, currant, vine, potato-fruit, &c. When a fruit has only a fleshy rind, without any internal pulpiness, as is the case with the capsicum, it is not called a berry, but a berried capsule. It will be seen that this definition excludes the berries of the hawthorn, the raspberry, the orange, the rose, &c. [For which see POME, ETÆRIO, HESPERIDIUM, and CYNARRHODON.]

BACCARAT, a town in the department of Meurthe in France, on the banks of the river which gives name to the department, 235 miles E. of Paris, and 27 miles E.S.E. of Nancy, the capital of the department. It is situated at the foot of a steep hill and in the neighbourhood of a considerable forest. It was a small town in the middle of the last century, for Expilly (*Dict. Géog. des Gaules et de la France*, 1762) states the number of families to have been only 117, which, allowing six persons to a family, gives 702 persons. At present there are in the commune above 2800 inhabitants, of whom nearly 1700 are in the town itself. More than 700 workmen are employed in the manufacture of flint glass, (*cristaux*) both for drinking-vessels and windows, which is in considerable repute. These glass works are said to have belonged to the Bishop of Metz, in whose temporalities the *Châtellenie*, or manor of Baccarat, was included. There are also some iron-works (*forges*), and some trade in timber is carried on. Before the revolution there were a convent of Cordeliers and an hospital. Lat. 48° 27′ N., long. 6° 44′ E. from Greenwich.

BACCHA, in entomology, a genus of the order *Diptera*, and family *Syrphidæ*. The species of this genus of two-winged flies are peculiar in having the two basal joints of the abdomen remarkably long and slender, with the remaining joints depressed, and suddenly increased in breadth. They are generally of a black or bronze colour, with yellow spots or markings; they are met with near London, and frequent flowers.

BACCHANA'LIA, feasts or festive rites in honour of Bacchus, at which a mixed crowd of men and women, intoxicated with wine, clothed in deer-skins and Asiatic robes, and carrying thyrsi in their hands, ran up and down the country shouting, beating drums and cymbals, and crying, 'Evoe! Io Bacche! Evan!' &c. They were introduced at Rome, B.C. 187. (Liv. xxxix. 8.) These rites were celebrated every third year, and were hence called Trieterica. They must be distinguished from the vintage festivals, on which see the article DIONYSIA.

BACCHIGLIO'NE, a river in the Venetian States, which has its source in the Alps that divide the province of Vicenza from the Lower Tyrol; it flows in a S.E. direction, passes through the town of Vicenza, and a few miles below it receives the Astego, another Alpine stream coming from the north; it then crosses the rich plain of Padua, and passes by the walls of the city of that name, thirty miles below which it enters the Adriatic at Brondolo, opposite to the island and town of Chioggia. The Bacchiglione is navigable for large boats from Vicenza down to the sea. A canal joins the Bacchiglione to the Brenta between Padua and Stra, and affords a direct communication by water between Padua and Venice. Another canal, called Della Battaglia, runs from Padua to the town of Este, passing by Monselice. The Bacchiglione was called by the Romans Meduacus Minor, in contradistinction to the Meduacus Major, or modern Brenta. The whole course of the Bacchiglione is about ninety miles.

BA'CCHIUS, sometimes incorrectly called Vacceus, is a Greek writer on music. His work is entitled Εἰσαγωγὴ τέχνης μουσικῆς, 'An Introduction to the Art of Music,' in questions and answers. Bacchius follows in general the system of Aristoxenus. His epoch is uncertain, but it is conjec-

tured that he lived after Ptolemy. The work of Bacchius is contained in the collection of Meibomius.

BA'CCHUS (Βάκχος, Διόνυσος), was, according to the common traditions of the antient Greeks, one of the personages worshipped under the generic name of heroes; according to the more systematic mythologers he was a demon or genius. His worship seems to have arisen from that 'striving after objectivity' (Wachsmuth, *Hellen. Alterthum.* ii. 2. p. 113) which is the characteristic of a primitive people, and which leads man in his rude state to the worship of the active and productive powers of nature. The common story of the birth of Bacchus, his mother Semele's fatal wish, his imprisonment in the thigh of his father Jupiter, and the various adventures attributed to him, are too well known to need description; and it would take up more space than the nature of this work allows to discuss the inferences drawn from the old traditions by modern mythologers. These deductions, and especially the description of the mystical character of Bacchus, as distinguished from his worship as the god of wine, may be seen fully developed by Creuzer (*Symbolik*, theil. iii. pp. 83, 266; pp. 319-366), whose theory, however, of the Indian origin of the Bacchic rites, though abundantly ingenious, does not appear to be established by sufficient external evidence. The southern coast of Thrace seems to have been the original seat of this religion, and it was thence introduced into Greece shortly after the colonization by the Æolians of the Asiatic coast of the Hellespont. The admission of the identity of Osiris and Dionysus by Plutarch and other mythological theorists, as well as Herodotus's simple statement of the assertions of the Egyptian priests to that effect, is no proof of the common origin of the worship of this divinity in Egypt and Greece; but there is no doubt that certain modifications of the Dionysiac rites took place after the commencement of the intercourse of the Ionians with the Egyptians.

The worship of Bacchus is intimately connected with that of Demeter; under the name of Iacchus he was worshipped along with that goddess at Eleusis. [See **Demeter.**] Virgil invokes them together (*Georgics*, i. 5) as the lights of the universe. According to the Egyptians they were the joint rulers of the world below. (Herod. ii. 123.) Pindar calls Dionysus 'the companion of Demeter' (χαλκοκρότου πάρεδρον Δαμάτερος), and in a cameo he is represented sitting by the goddess in a chariot drawn by male and female centaurs. (See Buonarotti, *Osservazioni sopra alcuni Medaglioni Antichi*, p. 441; Mariette, *Traité des Pierres Gravées*, t. ii. p. i.)

On the form and dress of Bacchus almost all the antient testimonies have been collected by F. G. Schön in an ingenious dissertation on the costume of the characters in the Bacchæ of Euripides. From these it appears that he was represented as a young man with an effeminate face (θηλύμορφος, Bacch. 353; Euseb. *Chron.* p. 29), with long blond hair (Bacch. 455, *Cycl.* 63), with a fillet on his head (Strabo, xv. p. 1038), or an ivy crown (*Cycl.* 593), with a long purple robe and a nebris (deer-skin), and with a thyrsus in his hand. Many of his numerous appellations may be seen in the Index to Wachsmuth, p. 570, and in Ovid *Met.* lib. iv. init. His attendants were the Bacchantes, the Lenæ, the Naiades and Nymphs, the Thyades, the Mimallones, the Tityri, Pan, Silenus, the Fauns, and the Satyrs. (The reader may consult, in addition to the authorities quoted, Müller's *Handbuch der Archäologie der Kunst*, Breslau, 1830.)

BACCHY'LIDES, a Greek poet and a nephew of the elder Simonides, was a native of the island Ceos. He probably lived in the first half of the fifth century before the Christian æra, was a contemporary of Pindar, though younger than that celebrated poet, and is said to have visited Hiero king of Sicily. His compositions were very various, consisting of hymns, dithyrambic poems, odes in celebration of the Pythian victors, amatory poems, &c., all of which are now lost except a few small pieces, twenty in number. Longinus (§ 33) institutes a kind of comparison between Bacchylides and Pindar, but it is so brief and unsatisfactory that the precise meaning of the critic is not seen. The fragments of Bacchylides were published separately by C. F. Neue, Berlin, 1822, 8vo. They are translated in Merivale's edition of Bland's *Anthology*, pp. 75-80.

BA'CCIO DELLA PORTA. This distinguished painter was so named from having resided near the gate of St. Peter's, at Florence; but he is more generally recognized by the name of Frate Bartolomeo di S. Marco. He was a native of the district of Savignano, and born in the year 1469. He commenced his studies, and passed some years under the tuition of Cosimo Rosselli at Florence, but it was from the great father of modern art, Leonardo da Vinci, that he obtained the first idea of that effective style of colour and chiar' oscuro by which his subsequent works are distinguished. He attempted to acquire fixed principles of form and ideal character from antient sculpture; and, in company with his friend, Mariotto Albertinelli, he drew and modelled from statues and bassi-rilievi with indefatigable attention. It was fortunate that he had made considerable proficiency in those studies previously to his acquaintance with the celebrated Dominican, Savonarola, who appears to have exercised a considerable influence over his mind, and by whose fanatical scruples he was induced to destroy, on account of their nudity, a prodigious number of studies which he had made of the human figure. This impression seems to have remained with Bartolomeo during his whole life; he seldom treated subjects which exhibited the naked form, but the knowledge he had previously acquired of it is perceptible in the fine understanding of the figure, which is visible through his draperies. His early works were of small dimensions, and distinguished by graceful composition and high finishing; but it was in the fresco of the Last Judgment, painted for the chapel of Sta. Maria Nuova, that the grandeur of his style and the extent of his powers were first manifested. Shortly after the completion of this piece, Bartolomeo being at work in the convent of St. Mark, a forcible entry was made into the monastery by the pope's officers for the purpose of seizing the person of Savonarola; a formidable resistance was made by the monks, but the unhappy zealot was borne away, and expiated his opinions at the stake. This event affected Bartolomeo so strongly, that he determined on devoting himself to the cloister, and in 1500 he took the habit of St. Dominic. In 1504 Raffaelle made a visit to Florence, and an intimacy commenced between him and Bartolomeo, who communicated to his great contemporary his own principles of colouring, and received from him in return some instructions in perspective. Shortly afterwards Bartolomeo went to Rome, where his mind, naturally timid and sensitive, appears to have been so overwhelmed by the contemplation of the great works of Michael Angelo and Raffaelle, that it was with difficulty he persuaded himself to make any practical effort; he painted, however, two single figures of St. Peter and St. Paul, which were long preserved in the palace of the Quirinal. Some altar-pieces and other works, nevertheless, executed shortly after his return to Florence, showed that he had profited largely by his visit to the Vatican; he had added a purer and more correct taste in design to his own bold style of relief and powerful colouring, and the sublime figure of St. Mark (now in the gallery of Florence) was alone a sufficient proof that he had no reason to shrink from any competition. The great vice of the Florentine school was an ostentatious display of anatomy, which not unfrequently gave to their works, both in painting and sculpture, an appearance little short of disgusting. The fine feeling and good sense of Bartolomeo led him to avoid this error, and as a delicacy, perhaps over-scrupulous, induced him to avoid subjects requiring a display of naked form, the jealousy of his competitors availed itself of these circumstances to accuse him of deficiency in anatomical knowledge, and an incapacity to treat any subject demanding an accurate acquaintance with the human figure. To refute these aspersions Bartolomeo painted a St. Sebastian, the only fault of which was that it was too perfect, the representation of nature being so just and vivid that the monks forbade it to be publicly exposed in their church. The subjects in which Bartolomeo delighted were Saints, Evangelists, and Madonnas, with the Divine Infant, surrounded by angelic choirs. The French, when in Italy during the wars consequent on the Revolution, carried off several of these fine performances, among them the Marriage of St. Catherine, a grand composition; and the four Evangelists from the church of the Nunziata. These works decorated the Louvre for some time, but were finally restored among the other spoliations. Vasari mentions that a number of studies of figures, draperies, limbs, &c., had been left by Bartolomeo to a scholar, a nun of St. Catherine, at Florence. Many of these were in possession of Mr. West, the late President of the Royal Academy, and formed a strong evidence of the zeal and application with which the artist had pursued his studies. Bartolomeo died in the convent of St. Mark, in 1517, aged forty-eight.

BACH, JOHANN SEBASTIAN, whose name holds so conspicuous a place in the musical history of Germany, and from the various branches of whose family have sprung more organists and able contrapuntists than any one family ever produced, was born at Eisenach, in the circle of Upper Saxony, in 1685. His ancestor in the fourth degree, Veit Bach, was a miller and baker at Presburg in Hungary early in the sixteenth century, but being obliged to quit his country on account of religious troubles, he settled at a village near Saxe Gotha. In his leisure hours he amused himself with his guitar, and communicated his taste for music to his two sons, who made it their profession, and taught it to their children, by whom it was handed on, till by degrees six generations, including the founder, practised the harmonic art, and held among them nearly all the offices of chantors and organists in Thuringia. In the *Allgemeine Musikalische Zeitung* (1823), is a curious genealogical tree of the Bach family,—John Sebastian appearing in the fifth generation,—which shows that, down to the middle of last century, there were fifty-eight male descendants from Veit, all of whom, according to Forkel, were professors of music.

When John Sebastian had not quite completed his tenth year, he lost his father, musician to the court and town of Eisenach, and was obliged to claim the protection of an elder brother, organist at Ordruff, from whom he received instructions on the clavichord (see CLAVICHORD), but not such as were proportioned to his facility in learning; he therefore gained more through his own efforts than he acquired from his relation, who, soon dying, left him again destitute, when he accompanied one of his schoolfellows to Luneburg, and entered the choir of St. Michael's as a soprano singer. There he obtained a good livelihood by his fine voice, which, however, soon changing, he found himself once more without resource till 1703, in which year he became court musician at Weimar; but exchanged this place the year following for that of organist to the new church at Arnstadt. His reputation now began to spread, and in 1708, the reigning Duke of Weimar, offering him the appointment of court organist, he accepted the situation. This afforded him an opportunity of communicating with and hearing many of the great musicians of his day, and his studies continuing unremitted, he became master of every branch of his science. In 1717 his prince made him director of the concerts, and in executing the duties of this office, he had to compose sacred music for the service of the duke's chapel.

About this time M. Marchand, the celebrated French organist, having visited Dresden, and performed before the king, was offered a large salary if he would engage in his majesty's service. Volumier, then director of the concerts at Dresden, fearing a rival, privately invited Bach to the capital of Saxony, who arrived, and with the royal approbation proposed a musical contest between himself and Marchand, who accepted the invitation: but when the day appointed arrived, and a large company had assembled in the mansion of the Marshal Count Fleming, the French musician did not appear, and, upon sending to his hotel, it was found that he had quitted Dresden that very day, without taking leave of a single individual. The king desired that a present of 100 Louis d'or should be sent to the challenger, but they never came into his possession.

After this, Bach accepted the office of *kapellmeister* to the prince of Anhalt-Cöthen, in which he continued six years. In 1723 he was appointed director of music and chantor to St. Thomas's School at Leipzig, which place he held till his death. On the decease of Prince Leopold of Anhalt-Cöthen, he wrote a funeral cantata, in which are some of his finest double choruses. He now accepted two situations which were little more than honorary—kapellmeister to the Duke of Weissenfels, and court composer to the King of Poland, elector of Saxony.

His second son, Carl Philipp Emanuel, entered the service of Frederic the Great in 1740. The king often expressed a desire to receive a visit from John Sebastian, who did not readily comply. The royal wishes were so often repeated that prudence forbade any further resistance. Bach went to Potsdam, just as the king's concert was on the point of commencing: an officer brought in a list of the strangers who had arrived. Frederic, hastily running it over, exclaimed to his musicians, 'Gentlemen, old Bach is arrived!' and immediately ordered him to be introduced, without allowing him to change his travelling dress. The concert was suspended, and John Sebastian was hurried from room to room, trying piano-fortes, of which there were fifteen in the palace, and playing on several organs. During the evening Bach asked his majesty for a subject on which he might play a fugue. This was immediately given, for the king wrote music very readily, and the voluntary task was executed most satisfactorily. The royal dilettante then asked for another fugue, to be in six parts, which was immediately executed, to the astonishment of all present. After his return to Leipzig he composed the subject given him by the king, in three and six parts, and had it engraved, under the title of *Musikalisches Opfer* (Musical Offering), and dedicated it to the inventor.

Bach's uninterrupted studies affected his eyes, and brought on a disease in them: having submitted to an operation which proved unsuccessful, he became quite blind. His constitution now felt the effect of the medical treatment he had undergone, and he continued declining for half a year. Ten days before his death he was suddenly enabled to see again; but in a few hours he was attacked by apoplexy, and after lingering some time, he expired on the 30th of July, 1750, in the sixty-sixth year of his age. He was twice married, and had by his first wife seven children; by his second, thirteen; in all, eleven sons and nine daughters.

So great was Sebastian Bach as an organ-player, that he had only one rival; but this was Handel. On the authority of old Kirkman, the harpsichord maker, Dr. Burney relates that these two extraordinary men once met at Salzburg, when both performed on the organ of the cathedral; but Forkel, whom we have followed in this article, states most distinctly, that they never came together. Bach's compositions, in almost every class, are very numerous; of these scarcely any are known out of Germany, except his *Clavecin bien Tempéré*, or Preludes and Fugues in all the tones and semitones, major and minor. These were composed as exercises for his sons; and while we admit the deep learning and ingenious contrivance they display, as well as the vast labour they must have cost, we are heretical enough to think that, as regards effect—and what is music without?—they have been over-valued. His vocal works, in our opinion, are much more likely to convey his name to distant ages, than those of the instrumental kind. Among the former are the funeral cantata before mentioned, a Magnificat, a motet, several *chorals*, or psalm-tunes, and, above all, his *Passionsmusik*, which show that he possessed genius as well as science; that he could not only write laborious fugues, but create pleasing melodies, and clothe these in harmonies as ravishing as recondite.

BACH, FRIEDEMANN, eldest son of Sebastian, followed his father's footsteps as a performer. He preferred playing extemporaneously, and therefore left but little behind him; but some few fugues which are published, are undeniable proofs of his knowledge and talent. He died at Berlin, in 1784, in very distressed circumstances.

BACH, CARL PHILIPP EMANUEL, second son of Sebastian, was born at Weimar in 1714. He was educated as a civilian, but music prevailed, and was adopted as his profession. In 1738 he went to Berlin, and entered the service of Frederic in 1740, in which he continued till 1767, when he succeeded Telemann, as music-director at Hamburg, and likewise became *kapellmeister* to the king's sister—the Princess Amelia. He died in 1788. Emanuel Bach composed much for the piano-forte, and it has been said that Haydn was much indebted to him for his style. We have never been able to convince ourselves of this fact; and after a careful examination of several—certainly not all—of his works, have not been fortunate enough to meet with more than two pieces, or three at the utmost, that at all justify the panegyrics which have been lavished on his compositions.

BACH, JOHANN CHRISTIAN, called Bach of Milan, and afterwards of London, was not instructed by his father, but received his musical education chiefly in Italy; his style, therefore, if a style he may be said to have had, exhibits few of the features which characterize the music of his native country. He came to England in 1763, to compose for the King's Theatre, and produced some operas, which were superior to most of the works then in vogue; but hardly a vestige of any one of them remains. Soon after the marriage of George III., Christian was appointed music-preceptor to Queen Charlotte, which office, or at least the salary appertaining thereto, he enjoyed till his death. In conjunction with Abel he commenced and carried on for nearly twenty years subscription concerts, which were

extremely successful. He composed much, and of all kinds, but his works are forgotten, notwithstanding the high praise bestowed on them by his biographer in Rees's *Cyclopædia*. He died in London, in 1782.

BACHELOR OF ARTS. [See Arts.]

BACKERGUNGE, a district in the province of Bengal, situated on the eastern side of the Sunderbunds, and forming, with that tract, a part of the labyrinth of creeks and rivers which characterize the delta of the Ganges. Until the beginning of the present century, Backergunge formed part of the large district of Dacca Jelalpoor. The population in 1801, when the separation took place, amounted to 926,723 souls, and the area of the new district comprehended 4564 square miles.

From its low situation, this district is liable to inundations, and has frequently suffered from that cause. A calamity of this kind occurred about the year 1574, and was soon after followed by an invasion of the country by the Mughs, the combined effect of which events was long ruinous to the district. The quantity of jungle covering its surface gave shelter to numerous alligators and tigers, which committed great depredations upon the property and the persons of the inhabitants. The country became also the resort of numerous decoits, or river pirates, who were for a long time as troublesome to the peaceable inhabitants as the savage animals just mentioned. Since the time when Backergunge has been constituted a separate district, the attention of the Indian government has been turned to its improvement; the land has been in a great measure cleared, which has rendered the climate more healthy, and has at the same time dislodged the beasts of prey, while the exertions of a strong establishment of police have been equally successful in suppressing the pirates.

During the periodical rains the lands of Backergunge are overflowed by the water of the Ganges, which leaves a slimy and very fertilising deposit. This, acted upon by the hot sun, makes the soil exceedingly productive, so that it yields every year two harvests of rice, which are abundant and of good quality, and serve in a great degree for the supply of the market of Calcutta. Owing to an excessive fall of rain, a large tract of this district was inundated in June, 1822, and great numbers of cattle and houses, together with more than 10,000 inhabitants, were carried off by the flood.

About five-eighths of the inhabitants are Hindus, and the remainder Mohammedans. Several colonies, the descendants of Portuguese who settled here 200 years ago, are living in the southern quarter of Backergunge: they have degenerated from the civilization of their ancestors to a great degree.

The town of Backergunge, which is situated in 22° 42′ N. lat., and 89° 20′ E. long., is about 120 miles east of Calcutta. The courts of justice and of revenue under the British government were formerly stationed here, but when the separation of the district from Dacca Jelalpoor took place, the courts were removed to Burrishol, which is now the capital of the district. (Hamilton's *East India Gazetteer*; and Reports of Committees of House of Commons on the affairs of India.)

BACKGAMMON, a game played by two persons with dice, upon a table divided into two parts, upon which there are twelve points of one colour and twelve of another. Dr. Henry (*Hist. of Engl.* 4to. 1774, vol. ii. p. 601), speaking of the end of the Anglo-Saxon time, says, 'the game of backgammon, it is pretended, was invented in Wales in this period, and derives its name from the two Welsh words *bach* little, and *cammon* battle.' He refers for this information to the glossary at the end of Wotton's *Leges Wallicæ*, p. 583. Bishop Kennett, however, among his manuscript collections, gives us a more probable etymology of backgammon from back or backward, and the Saxon gamone or gaming, a game, sport, or play.

Hoyle, in a short *Treatise on Backgammon* (fifth edition, 12mo. 1748), has treated amply of its practice, and gives full directions how to play the different chances, with observations, hints and cautions to be attended to. He gives the following as the laws of backgammon:—1st. If you take a man from any point, that man must be played; the same must be done if two men are taken from it. 2d. You are not understood to have played any man till you have placed him upon a point and quitted him. 3d. If you play with fourteen men only, there is no penalty attending it, because by playing with a lesser number than you are entitled to, you play to a disadvantage, by not having the additional man to make up your tables. 4th. If you bear any number of men, before you entered a man taken up, and which, consequently, you were obliged to enter, such men, so borne, must be entered again in your adversary's tables, as well as the man taken up. 5th. If you have mistaken your throw and played it, and if your adversary has thrown, it is not in your or his choice to alter it, unless both parties agree to it.

Strutt, in his *Sports and Pastimes*, 4to. London, 1801, p. 240, says, 'at the commencement of the last century back gammon was a very favourite amusement, and pursued at leisure times by most persons of opulence, and especially by the clergy, which occasioned Dean Swift, when writing to a friend of his in the country, sarcastically to ask the following question, 'In what esteem are you with the vicar of the parish; can you play with him at backgammon?'

BACKHUYSEN, LUDOLPH. This celebrated marine-painter was born at Embden in 1631, of a highly respectable family. Being intended by his parents for a mercantile profession, he was sent to Amsterdam at the age of eighteen, and placed in the counting-house of M. Bartholet, an eminent merchant. The youth had been early remarkable for his singularly fine hand-writing, but it does not appear that, up to this period, his talent for painting had developed itself; the latent faculty, however, was stimulated by the picturesque objects which the sea presented to young Backhuysen before the windows of his office, and his first delineations were of shipping, done with a pen in a style of extraordinary beauty and correctness. These drawings excited such surprise and admiration, that it became a fashion to possess them, and they were sold at the prices of 10, 20, and even 100 florins each. Backhuysen now determined on relinquishing his commercial pursuits, and devoting himself to art. His first master was Albert Van Evendingen; but not wishing to confine himself to one style, he made acquaintance with all the artists in the city, and spent a large portion of his time in their studies, until, by sedulous observation, and repeated practice, he had acquired a full mastery in the executive part of his art. But those subjects to which his genius particularly directed him were not to be found in the apartments of painters, or in the silence of academies. His element was the gale and the storm; nor did he shrink from the perils which accompanied the study of Nature in her sternest and most appalling aspects. It was his practice to induce boatmen, by large rewards, to put to sea at times when no other person would venture from shore. Amidst the dash of waves, the roaring of breakers, and the danger of vessels, he sat making his sketches with perfect composure; and he has transmitted this terrible scenery to the canvass with a fidelity which can scarcely fail to inspire the spectator with a portion of that terror to which he seemed perfectly insensible himself. He stamped, by this mode of study, a character of truth on his works which could have been obtained by no other means; and he acquired the rare distinction of forming a style peculiarly his own, which no rivalry has approached. His works of a tempestuous character, it may be affirmed, are superior even to those of Vandevelde, beautiful as those of the latter unquestionably are in subjects of mild and tranquil character. The moment that he landed from his marine excursions, Backhuysen hastened to his painting-room, nor would he admit the visits of his most intimate friends until he had transmitted his impressions to canvass. He was at all times assiduous, and considering the exquisite finish of his productions, the number of them is astonishing. His works possess, in the highest degree, the peculiar excellencies of the Dutch school,—richness, transparency, delicate handling, and appropriate colour. No artist ever excelled him in the art of giving depth without darkness: frequently, in his pictures of an approaching storm, the very atmosphere seems to labour with gloom, yet the clearness, and even vivacity of effect, are not in the least impaired.

Backhuysen had the good fortune to be appreciated in his own time. His works were eagerly sought after: among other important commissions, he was employed by the burgomasters of Amsterdam to paint a large picture, with a multitude of vessels, and a view of the city at a distance; for which he received thirteen hundred guilders, and a present also of considerable value. This picture was sent, in 1665, as a present to Louis XIV., who placed it in the Louvre. Many royal personages honoured the artist by visiting his study, among them the king of Prussia, and the Czar Peter; the latter especially found his taste for

nautical affairs gratified by the frequent inspection of his works. He engaged Backhuysen to make designs of various vessels, and delighted to converse with him on the mode of constructing and manœuvring them, in which Backhuysen was profoundly skilled. At the age of 71, he amused himself with etching a set of views on the Y, near Amsterdam. He died in 1709, aged 78. His pictures are numerous in Holland, and not unfrequent in English collections. Many of them have been engraved, and some were etched by himself.

Although his latter years were embittered by a painful malady, Backhuysen's natural cheerfulness of temper never forsook him. This was strongly exemplified within a few days of his death. He ordered in a number of bottles of wine of the choicest quality, on each of which he set his seal. A certain number of his friends were then invited to his funeral, to each of whom he bequeathed a gold coin, requesting them to spend it merrily, and to drink the wine with as much cordiality as he had consigned it to them.

BACON, ROGER. The little that is known of the greatest of English philosophers before the time of his celebrated namesake, shows how long the effects of contemporary malice might last, before the invention of printing had made an appeal to posterity easy. His writings, destroyed or overlooked, only existed in manuscript or mutilated printed versions, till nearly the middle of the last century. In the mean time tradition framed his character on the vulgar notions entertained in his day of the results of experimental science; and the learned monk, searching for the philosopher's stone in his laboratory, aided only by infernal spirits, was substituted for the sagacious advocate of reform in education, reading, and reasoning; and—what was equally rare—the real inquirer into the phenomena of nature.

Roger Bacon died in 1292, in about the 78th year of his age, which places his birth near the year 1214; roughly speaking, he lived from the time of the Interdict in the reign of John, to the beginning of the interference with Scotland in that of Edward I. His age is that of Cardinal Cusa, Thomas à Kempis, Matthew Paris, Albertus Magnus, Raymond Lully, Sacrobosco, &c., to whom we add, as they are sometimes confounded with him, and not for their own note, two theologians, Robert Bacon (died 1248) and John Bacon (died about 1346).

Roger Bacon was born near Ilchester in Somersetshire, of a respectable family. He was educated at Oxford, and, according to the usual custom of his day, proceeded to Paris, which was then the first university in the world. The course of study in vogue, however unfavourable to independence of thought, did not give so great a preponderance to the works of Aristotle as was afterwards the case. The theology of the day had set strongly against philosophy of every species. In 1209, a council at Paris condemned and burnt, if not the works of Aristotle, at least the mutilated and interpolated translations from the Arabic which then existed. But when, towards the middle of the century, Latin versions from the Greek began to appear, and the philosophy contained in them to be warmly advocated by the new orders of Franciscans and Dominicans, and particularly by Albertus Magnus (died 1282), the reputation of Aristotle advanced so rapidly, that he had gained the exclusive title of 'the Philosopher' by the time Roger Bacon wrote his *Opus Majus*. But Bacon in no sense became an Aristotelian, except in that which comprehends all who are acquainted with the opinions and methods of the Greek philosopher. Better versed in the original than most of his contemporaries, he freely criticises all he meets with (especially the merit of the translations, all which he says he would burn, if he could), and is himself an early and sufficient proof that the absurdities of his contemporaries ought not to be called 'Aristotelian,' any more than Aristotle himself 'the Philosopher.' Bacon could read Aristotle without danger of falling into idolatry: his antagonists could have erected a system of verbal disputes upon the *Principia* of Newton, if they had possessed it.

After his return to Oxford, with a doctor's degree granted at Paris, which was immediately also confirmed by the former university, he took the vows of a Franciscan in a convent possessed by that order at Oxford, on the persuasion, it is said, of Robert Greathead or Grostête, bishop of Lincoln, of whom we shall presently speak. It has been conjectured that he had already done this before his return to Oxford, but this appears to have arisen from his having been known to have resided in a Franciscan convent while at Paris. From the time of his return, which is stated to have been A.D. 1240, he applied himself closely to the study of languages, as well as to experimental philosophy. In spite of the vow of poverty, he does not appear to have wanted means, for he says himself that in twenty years he spent 2000 livres (French) in books and instruments; a very large sum in those days.

The vow of the Franciscans was poverty, manual labour, and study; but the first two were soon abandoned. On this subject we notice a writing of Bacon, of which (except in Dr. Jebb's list) we can find only one casual notice (in Vossius, *de Hist. Lat.* art. Bacon). It is said that he answered a work of St. Bonaventure, general of his order, which treated of the abovementioned vow; but which side either party adopted is not stated.

The enmity of his brethren soon began to show itself: the lectures which he gave in the University were prohibited, as well as the transmission of any of his writings beyond the walls of his convent. The charge made against him was that of magic, which was then frequently brought against those who studied the sciences, and particularly chemistry. The ignorance of the clergy of that time as to mathematics or physics was afterwards described by Anthony-a-Wood, who says that they knew no property of the circle except that of keeping out the devil, and thought the points of a triangle would wound religion. Brought up to consider philosophy as nearly allied to, if not identical with, heresy itself, many of them might perhaps be honest believers in its magical power; but we can hardly doubt that there were a few more acute minds, who saw that Roger Bacon was in reality endeavouring to evoke a spirit whose influence would upset the power they had acquired over the thoughts of men, and allow them to read and reflect, without fear of excommunication, or the necessity of inquiring what council had authorized the book. The following detached passages of the *Opus Majus* no doubt contain opinions which its author was in the habit of expressing:—

'Most students have no worthy exercise for their heads, and therefore languish and stupefy upon bad translations, which lose them both time and money. Appearances alone rule them, and they care not what they know, but what they are thought to know by a senseless multitude.—There are four principal stumbling-blocks in the way of arriving at knowledge—authority, habit, appearances as they present themselves to the vulgar eye, and concealment of ignorance combined with ostentation of knowledge.—Even if the first three could be got over by some great effort of reason, the fourth remains ready.—Men presume to teach, before they have learnt, and fall into so many errors, that the idle think themselves happy in comparison—and hence both in science and in common life we see a thousand falsehoods for one truth.—And this being the case, we must not stick to what we hear and read, but must examine most strictly the opinions of our ancestors, that we may add what is lacking, and correct what is erroneous, but with all modesty and allowance.—We must, with all our strength, prefer reason to custom, and the opinions of the wise and good to the perceptions of the vulgar: and we must not use the triple argument; that is to say, this has been laid down, this has been usual, this has been common, therefore it is to be held by. For the very opposite conclusion does much better follow from the premises. And though the whole world be possessed by these causes of error, let us freely hear opinions contrary to established usage.'

As might be supposed, Roger Bacon cultivated the acquaintance of men who held sentiments similar to the above, which could not please his brethren. Among them we have mentioned Grostête, bishop of Lincoln, who usually resided at Oxford. This prelate, who was a good mathematician, and a resolute opponent of undue interference on the part of the see of Rome (*terrificus papæ redargutor*, says Camden), had opposed Innocent IV., who attempted to appoint his nephew, a boy, to a prebend at Lincoln. On being excommunicated, Grostête appealed from the tribunal of Rome to that of Christ; and so prevalent was the opinion of his antipathy to the pope, that a story is gravely told by Knyghton (cited by Blount, *Censura*, &c.), that the bishop of Lincoln, after his death, appeared to Innocent in a dream, and exclaiming '*Surge, miser, veni in judicium!*' actually stabbed his Holiness, who was found dead next morning. It is needless to say that Innocent IV. died a natural death, and useless to speculate upon the means by which such a

circumstance as the preceding, if true, could come to be known. But perhaps the memory of Grostête may have been one reason of the willingness with which succeeding popes continued Bacon's imprisonment, to which we shall soon come; for though they might hold his spirit guiltless of the death of Innocent, they long remembered what he had done in the flesh: and when Edward I. and the University of Oxford, long after, applied to Clement V. for the canonization of Grostête, they received for answer that the pope would rather his bones were thrown out of consecrated ground.

In the mean time a pope was elected, to whom we owe the production of the *Opus Majus*. This was Clement IV. (elected 1265), who had previously, when cardinal-bishop of Sabina, been legate in England. Here he had heard of Bacon's discoveries, and earnestly desired to see his writings; but, as before stated, the prohibition of the Franciscans prevented his wish being complied with. After his election as head of the Church, Bacon, conceiving that there would be no danger or impropriety in disobeying his immediate superiors at the command of the pope, wrote to him, stating that he was now ready to send him whatever he wished for. The answer was a repetition of the former request; and Bacon accordingly drew up the *Opus Majus*, of which it may be presumed he had the materials ready. It appears that he had mentioned the circumstances in which he stood; for Clement's answer requires him to send the work with haste, any command of his superiors or constitution of his order notwithstanding, and also to point out, with all secrecy, how the danger mentioned by him might be avoided. The book was sent in the year 1267, by the hands of John of London, a pupil of whom he speaks highly, and who has usually obtained some notice from the very great praise which Bacon in one place appears to give him, when he says that he only knows two good mathematicians, namely, John of London, and another whom he names. But from some other circumstances Dr. Jebb concludes, with great probability, that the latter of the two was John Peccam, a London Franciscan, afterwards archbishop of Canterbury, who was well known as a mathematician.

Before the *Opus Majus*, Bacon, according to his own account, had written nothing except a few slight treatises, 'capitula quædam.' Before he took the vows he wrote nothing whatever; and afterwards, as he says to Clement, he would have composed many books for his brother and his friends, but when he despaired of ever being able to communicate them, he neglected to write.

With the *Opus Majus* he sent also two other works, the *Opus Minus* and the *Opus Tertium*, the second a sort of abstract of the first, and the third a supplement to it. These exist in manuscript in the Cottonian Library, but have not been printed. It appears that, after the death of Clement, which took place in November, 1268 (not 1271, as stated by some; the latter date is that of the election of Clement's successor, the see having been vacant two years and three quarters), he revised and augmented the second of these works. What reception Clement gave them is not known; some say he was highly gratified, and provided for the bearer; others, that he at least permitted an accusation of heresy against the writer. Both stories are unlikely: for Clement could hardly have received the work before he was seized with his last illness.

Till the year 1278 Bacon was allowed to remain free from open persecution; but in that year Jerome of Ascoli, general of the Franciscan order, afterwards pope, under the title of Nicholas IV., being appointed legate to the court of France, this was thought a proper opportunity to commence proceedings. Bacon, then sixty-four years old, was accordingly summoned to Paris (Dr. Jebb implies that he had already removed his residence there, to another convent of his order), where a council of Franciscans, with Jerome at their head, condemned his writings, and committed him to close confinement. According to Bale, or Balæus (cited by Dr. Jebb), the charge of innovation was the pretext, but of what kind was not specified: according to others, the writings of Bacon upon astrology were the particular ground of accusation. We cannot learn that any offer of pardon was made to the accused upon his recantation of the obnoxious opinions, as usual in such cases; which, if we may judge from the *Opus Majus*, Bacon would have conceived himself bound to accept, at least if he recognized the legality of the tribunal. A confirmation of the proceedings was immediately obtained from the court of Rome. During ten years, every effort made by him to procure his enlargement was without success. The two succeeding pontiffs had short and busy reigns; but on the accession of Jerome (Nicholas IV.), Bacon once more tried to attract notice. He sent to that pope, it is said, a treatise on the method of retarding the infirmities of old age, the only consequence of which was increased rigour and closer confinement. But that which was not to be obtained from the justice of the pope, was conceded to private interest, and Bacon was at last restored to liberty by the intercession of some powerful nobles, but who they were is not mentioned. Some say he died in prison; but the best authorities unite in stating that he returned to Oxford, where he wrote a compendium of theology, and died some months, or perhaps a year and a half, after Nicholas IV. (who died April, 1292). We have adopted 1292 from Anthony-à-Wood, as the most probable year of his death, though foreign works frequently state that he died in 1284. He was buried in the church of the Franciscans at Oxford. The manuscripts which he left behind him were immediately put under lock and key by the magic-fearing survivors of his order, until, not so lucky as those of another wizard, Michael Scott, they are said to have been eaten by insects.

Of the asserted works of Bacon there is a very large catalogue, cited mostly from Bale and Pits, in the preface to Dr. Jebb's edition of the *Opus Majus*. They amount to five on grammar, six on pure mathematics, seventeen on mechanics and general physics, ten on optics, six on geography, seven on astronomy, one on chronology, nine on chemistry and alchemy, five on magic, eight on logic and metaphysics, nine on medicine, six on theology, twelve miscellaneous, a hundred and one in all. But it is most likely that the greater part of these were extracts from the *Opus Majus*, &c., with separate titles, that some are not genuine, and that others are more properly attributable to the two other Bacons already mentioned. The principal manuscripts of the *Opus Majus* are, one in Trinity College Library, Dublin, discovered by Dr. Jebb, which forms the text of his edition, two in the Cottonian Library, one in the Harleian, one in the library of Corpus Christi College, Cambridge, one in that of Magdalen College, two in the King's Library, all containing various parts of the work. These are independent of the *Opus Minus* and *Opus Tertium* in the Cottonian Library, already mentioned, of some in Lambeth palace, in the Bodleian Library at Oxford, and a host of others at home and abroad which we cannot specify. The Dublin manuscript is the only entire one with which Dr. Jebb was acquainted. It is a folio of 249 leaves, beautifully written on thick paper, with a good margin, and in double columns. It is not dated, but from the character of the writing it is judged to be of the reign of Henry VIII., or perhaps the early part of that of Elizabeth. The geometrical figures are neatly drawn in the margin. Pope Clement's letters are in the Vatican library.

Of printed works we have found the following:—*Perspectiva*, Frankfort, 1614; *De Speculis* and *Specula Mathematica*, Frankfort, 1614, reprinted in 1671; *De Mirabili Potestate Artis et Naturæ*, Paris, 1542; Girard, *De l'admirable Pouuoir, &c. ou est traicté de la Pierre Philosophale* (translation of the preceding), Paris, 1557, reprinted in 1629; *Scripta quædam de Arte Chemiæ*, Frankfort, 1603 and 1620; *Speculum Alchemiæ*, and *De Secretis Operibus Artis et Naturæ, et de Nullitate Magiæ*, in vols. ii. and v. of Zetzner's *Theatrum Chemicum*, Strasburg, 1659; the *Opus Majus*, edited by Dr. Jebb, London, 1733; *De retardandis Senectutis Accidentibus*, Oxford, 1590, translated by Dr. R. Browne, London, 1683. In a volume of tracts on alchemy, Lyons, [illegible], there are two attributed to Roger Bacon; and there is one (the *Speculum Alchemiæ*, in English) in a similar collection, London, 1683. The work on old age was published in English, 1683.

It only remains for us to take a general view of the character of Roger Bacon's writings, and of the contents of the *Opus Majus*. It is surprising how little is known of this work, the only one to which we can appeal, if we would show that philosophy was successfully cultivated in an English university during the thirteenth century. It is of course in Latin, but in Latin of so simple a character, that we know of none in the middle ages more easy to read; and it forms a brilliant exception to the stiff and barbarous style of that and succeeding times. We think we see the thoughts of the author untranslated, though the idiom is often that of an Anglo-Norman; by which we mean that we frequently find Latin words used in their modern English acceptation, for

instance, *intendere* for *in animo habere*, meaning the same as our word to *intend*; *præsumere* for *sibi arrogare* in the sense of to *presume* We should perhaps rather say that the English words receive their meaning from the corrupted Latin, and not *vice versâ*, in which case the work of Roger Bacon may become useful in tracing the change, and the more so on account of the great simplicity of the style

The charge of heresy appears to be by no means so well founded as a Protestant would wish Throughout the whole of his writings Bacon is a strict Roman Catholic, that is, he expressly submits matters of opinion to the authority of the church, saying (Cott MSS cited by Jebb) that if the respect due to the vicar of the Saviour, 'vicarius Salvatoris,' alone, and the benefit of the world, could be consulted in any other way than by the progress of philosophy, he would not, under such impediments as lay in his way, proceed with his undertaking for the whole church of God, however much it might entreat or insist His zeal for Christianity, in its Latin or western form, breaks out in every page, and all science is considered with direct reference to theology, and not otherwise. But at the same time, to the credit of his principles, considering the book burning, heretic-hunting age in which he lived, there is not a word of any other force except that of persuasion. He takes care to have both authority and reason for every proposition that he advances: perhaps, indeed, he might have experienced forbearance at the hand of those who were his persecutors had he not so clearly made out prophets, apostles, and fathers to have been partakers of his opinions 'But let not your Serenity imagine,' he says, 'that I intend to excite the *clemency* of your Holiness, in order that the papal majesty should employ force against weak authors and the multitude, or that my unworthy self should raise any stumbling block to study Indeed the whole scope of the first part of the work is to prove, from authority and from reason, that philosophy and Christianity cannot disagree a sentiment altogether of his own revival, in an age in which all philosophers, and mathematicians in particular, were considered as at best of dubious orthodoxy

The reasoning of Bacon is generally directly dependent upon his premises, which though often wrong seldom lead him to the prevailing extreme of absurdity Even his astrology and alchemy, those two great blots upon his character, as they are usually called, are, when considered by the side of a later age, harmless modifications, irrational only because unproved, and neither impossible nor unworthy of the investigation of a philosopher, in the absence of preceding experiments His astrology is *physical* 'With regard to human affairs, true mathematicians do not presume to make certain, but consider how the body is altered by the heavens, and the body being altered, the mind is excited to public and private acts, free will existing all the same' An age which is divided upon the question of the effect of the moon upon lunatics, and of which the philosophers have collected no facts decisive against many alleged effects of the same planet upon plants, can ask no more of a philosopher of the thirteenth century than that he should not be too positive The fame of Leibnitz has not suffered from the *pre-established harmony* one half as much as that of Bacon from his astrology and alchemy, which were believed in to a much greater extent by many of the learned of his time, and the united effect of which would seem to us sense and logic, compared with the metaphysical folly, all his own, of the eminent philosopher just cited.

This planetary influence appears to have been firmly believed in by Bacon, and in particular the effect of the constellations on the several parts of the human body Perhaps he was rather prejudiced in favour of a doctrine which was condemned by the same men who thought mathematics and philosophy savoured of heresy. And it must be remembered that the pretended science was almost universally allowed existence even by those who considered its use unlawful: nor can we infer that the church disbelieved it, because that body discouraged it, any more than that it rejected infernal spirits, because it anathematized magic.

We must draw a wide distinction between the things which Bacon relates as upon credible authority, and the opinions which he professed himself to entertain from his own investigations. In almost every page we meet with something now considered extremely absurd, and with reason. But before the day of *printing* there was very little *publishing*: a book which was written in one country, found its way but slowly into others, one copy at a time; and a man of learning seldom met those with whom he could discuss the probability of any narrative. The adoption of the principle that a story must be rejected because it is strange, would then have amounted to a disbelief of all that had been written on physics; a state of mind to which we cannot conceive any one of that age bringing himself Nor can we rightly decide what opinion to form of Bacon as a philosopher, until we know how much he rejected, as well as how much he believed Those remarks apply particularly to his alchemy he does not say he had made gold himself, but that others had asserted themselves to have made it, and his account of the drink by which men had lived hundreds of years is a relation taken from another Voltaire, in his philosophical dictionary, has overlooked this distinction, and has much to say in consequence It was, however, no very strange matter that Bacon, who (if the *Speculum Alchimiæ* be really his, of which, from the style, we doubt) believed with many others that sulphur and mercury were the first principles of all bodies, should endeavour to compound gold, or should give credit to the assertions of those who professed to have done so But there is not in Bacon's alchemy any direction for the use of prayers, fasting, or planetary hours

The great points by which Bacon is known are his reputed knowledge of gunpowder and of the telescope With regard to the former it is not at all clear that what we call gunpowder is intended, though some detonating mixture of which saltpetre is an ingredient, is spoken of as commonly known The passage is as follows —

'Some things disturb the ear so much, that if they were made to happen suddenly, by night, and with sufficient skill, no city or army could bear them No noise of thunder could compare with them Some things strike terror on the sight, so that the flashes of the clouds are beyond comparison less disturbing works similar to which Gideon is thought to have performed in the camp of the Midianites And an instance we take from a childish amusement which exists in many parts of the world, to wit, that with an instrument as large as the human thumb by the violence of the salt called saltpetre, so horrible a noise is made by the rupture of so slight a thing as a bit of parchment, that it is thought to exceed loud thunder, and the flash is stronger than the brightest lightning' *Opus Majus*, p 474

There are passages in the work *De Secretis Operibus*, &c (cited by Hutton, *Dictionary*, art Gunpowder), which expressly mention sulphur, charcoal, and saltpetre as ingredients But, independently of the claim of the Chinese and Indians [see GUNPOWDER], there is an author Marcus Græcus, whose work, *Liber Ignium* (now existing only in Latin translations from the Greek), is cited by Dr Jebb from a manuscript in the possession of Dr Mead and who appears to have been considered by both as older than Bacon Dr Hutton, into whose hands Dr Mead's manuscript passed, found this writer mentioned by an Arabic physician of the ninth century Græcus gives the receipt for gunpowder namely, one part of sulphur, two of willow-charcoal, and six of saltpetre Two manuscript copies of Græcus were also found in the Royal Library of Paris [See MARCUS GRÆCUS]

With regard to the telescope, it must be admitted that Bacon had *conceived* the instrument, though there is no proof that he carried his conception into practice, or *invented* it His words are these —'We can so shape transparent substances, and so arrange them with respect to our sight and objects, that rays can be broken and bent as we please, so that objects may be seen far off or near, under whatever angle we please, and thus from an incredible distance we may read the smallest letters, and number the grains of dust and sand, on account of the greatness of the angle under which we see them, and we may manage so as hardly to see bodies, when near to us, on account of the smallness of the angle under which we cause them to be seen for vision of this sort is not a consequence of distance, except as that affects the magnitude of the angle. And thus a boy may seem a giant, and a man a mountain, &c' The above contains a true description of a telescope, but if Bacon had constructed one, he would have found that there are impediments to the indefinite increase of the magnifying power; and still more that a boy does not appear a giant, but a boy at a smaller distance.

That the remarks of Bacon are derived from reflection and imagination only, is further apparent from his asserting that a small army could be made to appear very large, and that the sun and moon could be made to descend, to all appear-

ance, down below, and stand over the head of the enemy. At the same time it is worth notice, that these ideas of Bacon did, in after times, produce either the telescope, or some modification of it, consisting in the magnifying of images produced by reflection, and that before the date either of Jansen or Galileo. Thomas Digges, son of Leonard Digges, in his *Stratiotikos*, London, 1590, page 359, thus speaks of what his father had done, in the presence, as he asserts, of numerous living eye-witnesses :—

'And such was his Felicitie and happie successe, not only in these conclusions, but also in y^e Optikes and Catoptikes, that he was able by Perspectiue Glasses, duely scituate upon conuenient angles, in such sort to discouer every particularitie of the country round about, wheresoeuer the Sunne beames might pearse: as sithence Archimedes (Bakon of Oxford onely excepted) I have not read of any in action euer able by means natural to performe the like. Which partly grew by the aid he had by one old written book of the same Bakon's Experiments, that by strange aduenture, or rather Destinie, came to his hands, though chiefely by conioyning continuall laborious Practise with his Mathematicall Studies.'

And the same Thomas Digges, in his *Pantometria*, London, 1591, Preface, repeats the same story, with more detail, omitting, however, all mention of Bacon. He says that his father—'sundrie times hath by proportionall Glasses duely situate in conuenient angles, not onely discouered things farre off, read letters, numbred peeces of money with the very coyne and superscription thereof, cast by some of his freends of purpose upon Downes in open Fields, but also seuen miles off declared what hath beene doone at that instant in priuate places. There are yet living diuerse (of these his doomings) *Oculati Testes*.'

We must refer, for further details, to the article Telescope.

The question has been agitated whether the invention of spectacles is due to Bacon, or whether they had been introduced just before he wrote. He certainly describes them, and explains why a plane convex glass magnifies. But he seems to us to speak of them as already in use. 'Hence this instrument is useful to old persons and those who have weak eyes.'

The *Opus Majus* begins with a book on the necessity of advancing knowledge, and a dissertation on the use of philosophy in theology. It is followed by books on the utility of grammar and mathematics; in the latter of which he runs through the various sciences of astronomy, chronology, geography, and music. The account of the inhabited world is long and curious, and though frequently based on that of Ptolemy, or the writings of Pliny, contains many new facts from travellers of his own and preceding times. His account of the defects in the calendar was variously cited in the discussions which took place on the subject two centuries after. The remainder of the work consists of a treatise on optics and on experimental philosophy, insisting on the peculiar advantages of the latter. The explanation of the phenomena of the rainbow, though very imperfect, was an original effort of a character altogether foreign to the philosophy of his day. He attributes it to the reflection of the sun's rays from the cloud; and the chief merit of his theory is in the clear and philosophical manner in which he proves that the phenomenon is an appearance, and not a reality. Between the two last-mentioned books is a treatise *De Multiplicatione Specierum*, entirely filled with discussions somewhat metaphysical upon the connexion and causes of phenomena.

Our limits will not allow us to enter farther into details: nor could we, in any moderate space, do justice to the varied learning of the author, or distinctly mark the principal of the numerous singular and now-exploded notions which are introduced; nor, as far as we know, does there exist any full account of the contents, to which we can refer the reader.

BACON, SIR NICHOLAS, father of Sir Francis Bacon, and Lord Keeper of the Great Seal of England during the first twenty years of the reign of Elizabeth, was descended from an antient and wealthy family in Suffolk, which had held considerable possessions in that county for several generations. He was the second son of Robert Bacon, of Drinkston, in Suffolk, by Isabel, daughter of John Gage, of Pakenham, in the same county, and was born in the year 1510 at Chiselhurst, in Kent. The biography of his early years is uncertain; but he received his scholastic education at Bene't (Corpus Christi) College, Cambridge, and having finished his course of study there, spent a considerable time abroad, and particularly at Paris, for the purpose of completing his education. On his return to England, he kept his terms at Gray's Inn, and was called to the bar in that society. In consequence of the absence of detailed reports of the proceedings of courts of justice in the reign of Henry VIII., the professional course of an advocate cannot be traced with the same minuteness as in modern times. It is highly probable, that at an early period of his practice he attained a high reputation; for in 1537, at which time he was only twenty-seven years of age, he was appointed solicitor to the Court of Augmentations, and nine years afterwards was promoted by Henry VIII. to the office of attorney of the Court of Wards, a place of considerable emolument and responsibility. He continued to hold this latter office during the reign of Edward VI., his patent being renewed immediately upon the accession of that prince. Upon the dissolution of the monasteries, in 1539, Sir Nicholas Bacon prepared and presented to Henry VIII. a written project for the formation of a college for the study of politics and diplomacy, to be endowed with part of the property of the dissolved religious houses. The design was to instruct the students, in the first instance, in a competent knowledge of the French and Latin languages, and then to send them abroad with the king's ambassadors to acquire a knowledge of foreign affairs. Some of the persons thus educated, were to be appointed to write the history of all embassies, treaties, and other foreign transactions, and also of all public trials and important judicial proceedings at home; but before any of them were permitted to write on these subjects, they were to take an oath before the Lord Chancellor that they would do it truly, without respect of persons, or any other corrupt affection. This design miscarried, probably, as Burnet suggests, because the king, 'before he was aware of it, had so outrun his bounty, that it was not possible for him to bring any such projects to effect.' (*History of the Reformation*, vol. i. p. 269.) Having adopted the Protestant faith, Sir Nicholas Bacon was of course excluded from all favour or public employment during the reign of Mary; but upon the accession of Elizabeth, he was selected, with Sir William Cecil, Sir Francis Knollis, and several others of the Protestant party, to be of her privy council, and to qualify the influence of those of the Catholic party whom she thought it prudent to retain as her advisers. With Cecil he was connected not only by opinion and politics, but by relationship, as they both married daughters of Sir Anthony Cooke, of Giddy Hall, in Essex. In December, 1558, the queen displaced the Lord Chancellor Heath, who was also Archbishop of York, and gave the Great Seal to Sir Nicholas Bacon. The keepers of the seal in former reigns had no dignity nor authority attached to their office, having merely the temporary custody of the seal, until the appointment of a Lord Chancellor, for the purpose of sealing such writs and patents as were required. Sir Nicholas Bacon, conceiving it to be inexpedient that doubts should exist respecting the extent of his authority, advised the queen to make the appointment by letters-patent, which rendered the office permanent, and expressly gave him all the rank and authority of a Lord Chancellor. 'His not being raised to that high title,' says Burnet, 'perhaps flowed from his own modesty; for, as he was one of the most learned, most pious, and wisest men of the nation, so he retained in all his greatness a modesty equal to what the antient Greeks and Romans had carried with them to their highest advancement.' (*History of the Reformation*, vol. ii. p. 380.)

On the 25th of January, 1559, Sir Nicholas Bacon opened the first parliament of Elisabeth with a discreet and temperate speech, recommending in particular to the Lords and Commons a candid consideration of the religious differences which then agitated the nation, with a view to their satisfactory arrangement. This speech, which is given at length in the *Biographia Britannica*, though partaking of the diffuse and redundant style of that age, is an extremely judicious performance, well calculated to conciliate contending factions and to remove the difficulties by which Elizabeth's government was beset at the commencement of her reign. One of the most serious of these difficulties was the settlement of religion, and in this work Sir Nicholas Bacon was an important instrument both in council and in action. In March, 1559, the queen appointed a public conference to be held in Westminster Abbey, for the purpose

of discussing several controverted points in the doctrines and ceremonies of the Church of Rome. It was agreed that nine divines should argue on each side, and Sir Nicholas Bacon, as Lord Keeper, was nominated president or moderator. The conference ended abruptly, in consequence, as it was asserted by the Protestant party, of a breach of order on the part of the Catholic divines, some of whom were in consequence committed by the Lords of the Council to the Tower, and others were required to give security to answer for their disobedience and contempt.

Bacon's intimacy with Sir William Cecil, as well as his own upright and manly conduct, enabled him generally to retain the favour of the queen; but in 1564 he was suspected of having approved, and even assisted in writing, a book, published by one Hales, which questioned the title of Mary, Queen of Scotland, to succeed, after Elizabeth, to the English throne. At that time Elizabeth entertained a project of marrying the Earl of Leicester to the queen, and both she and that powerful favourite were greatly exasperated at the appearance of this book, which was expressly complained of by Mary's ambassador. Hales was committed to the Tower, and the Lord Keeper, who is said not to have had more hand in the book than Sir William Cecil, was dismissed from the privy council and from court, and discharged from all interference with public affairs except in the Court of Chancery. Anthony Wood says (*Athenæ Oxon.*, vol i. p. 177, edit. 1721) that it was contemplated to take the seal from him at this time, and that it was offered to Sir Anthony Browne, who, in the reign of Mary, had been Chief Justice of the Common Pleas, but that he refused to accept it. At length, however, by the assistance of Cecil, who continued through life his firm friend, Bacon succeeded in reinstating himself in the good opinion of the queen; and he from this time until his death appears to have enjoyed her favour and full confidence without interruption. In 1577 the queen visited him at the splendid mansion which he had lately built at Gorhambury, in Hertfordshire, and it was to that occasion that the anecdote refers which is related by Lord Bacon in his *Apophthegms*. Upon the queen's telling him 'that his house was too little for him,' he happily replied, 'Not so, madam; but your majesty has made me too great for my house.'

Sir Nicholas Bacon died on the 20th of February, 1579, in the 70th year of his age. The character of his mind, as given by his son, Lord Bacon, appears to be just and accurate, and is quite consistent with all the facts which are recorded of his life and conduct. 'He was,' says he, 'a plain man, direct and constant, without all finesse and doubleness, and one that was of a mind that a man, in his private proceedings and estate, and in the proceedings of state, should rest upon the soundness and strength of his own courses, and not upon practice to circumvent others.'

Many speeches of Sir Nicholas Bacon as Lord Keeper upon formal occasions will be found in the parliamentary history of the first twenty years of Elizabeth's reign, and several addresses by him to judges on being called to the bench are still extant in various depositories of manuscripts. His addresses on these occasions are replete with good sense. The following observations on judicial delays, contained in his address to Sir Roger Manwood on being sworn in as Lord Chief Baron, are a fair specimen of his remarks on similar occasions. 'Certain it is,' says he, 'that albeit a judge be fully furnished with knowledge, discretion, and integrity, yet if he be slothful and do not expedite his judgments, but delayeth the same when the causes be ready to be judged, then it followeth necessarily that all the former three parts serve to small purpose for the furtherance of justice; for true it is that a cause ready to judgment, and delayed by the judge, is a plain point of injustice; and as a wrong judgment is a perpetual injustice till it be reversed, so is the delay of judgment a plain injustice to the subject till judgment be given, for *qui diu distulit, diu noluit*. Again, the subject many times doth not only consume himself and his substance in unnecessary delays, but it happeneth also that sometimes it had been better for him to have had an unjust judgment speedily given against him before he had consumed himself, than, being consumed and undone, to have just judgment done unto him which will be small relief.' Of his decisions and judgments in the Court of Chancery few records are preserved. There is, however, among the Harleian Manuscripts in the British Museum (No. 39), a very sensible judicial opinion pronounced by him upon the question whether a peer of the realm is privileged from an attachment from the Court of Chancery for disobedience to a decree or order of that court. This question he decided in the negative.

BACON, FRANCIS, the youngest son of Sir Nicholas Bacon, was born at York House in the Strand, on the 22d of January, 1561. In boyhood he was sprightly and intelligent beyond his years. The Queen, who was taken with the smartness of his answers, used to try him with questions on various subjects; and it is said, that once when she asked him how old he was, his reply was ingeniously complimentary:—'I am just two years younger than your Majesty's happy reign.' Elizabeth expressed her approbation by calling the boy 'her young Lord Keeper.' Nothing is known of his early education. Having, however, parents of a superior order,—a father distinguished as a lawyer and a statesman, and a mother gifted with uncommon abilities, and eminent for her learning and piety, Bacon was placed favourably, from the first, for the formation of a learned and a virtuous character.

In his thirteenth year he was sent to Trinity College, Cambridge, and was placed under the tuition of Dr. Whitgift, at that time master of the college, and afterwards Archbishop of Canterbury. Here Bacon studied with diligence and success. The following fact, connected with his residence at college, has been thus stated and authenticated by Dr. Rawley, his chaplain and biographer:—'Whilst he was commorant at the university, about sixteen years of age (as his Lordship hath been pleased to impart unto myself), he first fell into the dislike of the philosophy of Aristotle. Not for the worthlessness of the author, to whom he would ever ascribe all high attributes, but for the unfruitfulness of the way—being a philosophy (as his Lordship used to say) only strong for disputations and contentions, but barren of the production of works for the life of man. In which mind he continued to his dying day.'



Bronze medal, British Museum. (From the series of Dacier medals.)

On leaving Cambridge, he entered Gray's Inn as a student of law. It is likely that his admission was in Michaelmas term, since it appears, from the records of the Inn, that he was made an antient on the 21st of November, 1576—an honour usually conferred on barristers, but bestowed on the sons of judges in consequence of their birth. His attendance in London not being required for some years, by the regulations of his inn, Bacon was sent, in compliance with a custom at the time common among the nobility, to study the institutions and manners of other countries. He went accordingly in the suite of Sir Amias Paulet, the British ambassador to the court of France. His superior sagacity and discretion soon induced the ambassador to intrust him with a message of some delicacy and importance to the Queen; a commission which Bacon executed so as to obtain the royal approbation. On his return to Paris, he made frequent excursions into the country, spent some time in Poictiers, and busied himself in collecting information on the characters and resources of the different princes of Europe. His work *Of the State of Europe*, in which he arranged and estimated the information thus collected, and which was written when he was nineteen years of age, displays conspicuously the industry, guided by deep penetration, which characterised his youthful mind. He places every thing in the light which best shows its nature as a political element. He estimates the different weights, in the scale of national importance, with an inductive and philosophic soberness—a justness of discrimination, and a nicety of tact and acuteness, which give us not merely a knowledge of the subject, but also an insight into the state of his mind, prompting to

make such observations by the early influence of that ambition which was the spring and life of his career.

His studies abroad were interrupted by the death of his father in 1579. Returning to London on this occasion, he found himself the only one of his family left unprovided for; his father having been prevented by the suddenness of his death from purchasing an estate with the money set aside for his youngest son. Instead of the whole, Francis received only a fifth share of the money. This caused him 'straits and difficulties.' in his youth. When a student in Gray's Inn, he divided his time between law and philosophy; and nothing can be more false than the fustian of his biographers about his genius being too lofty for the dry and thorny paths of legal investigation. He was early a proficient in law, and the knowledge which he attained could only have been acquired by a bent of mind suited to its investigations. Law was his principal study. Though when a student he sketched his great work the *Organon*, in a piece which his youthful pride entitled *Partus Temporis Maximus, the Greatest Birth of Time*, his studies were chiefly directed to legal subjects.

On the 27th of June, 1582, he was called to the bar. His practice soon became considerable. In 1586, four years after, he was made a bencher. In his 28th year he became counsel extraordinary to the Queen. In 1588 he was appointed a reader to his Inn; and again, in 1600, the Lent double-reader; appointments which showed the opinion of his professional acquirements held by those who were best able to judge of them, since the duty of reader was generally discharged by men of eminence in the profession, and seldom by persons so young as Bacon in years and practice, when he first received the honour. His double-reading on the Statute of Uses has been re-published several times, first in 1642; and in 1804 it was edited by William Henry Rowe, as a work of high authority on the difficult subject which it investigates.

Although connected with the most powerful family of Elizabeth's reign,—the nephew of Lord Burleigh, and the cousin of Sir Robert Cecil,—his advancement corresponded neither to the natural influence of his talents nor the apparently favourable position in which he was placed by his connexions. The practical and every-day minds of the Cecils were ill-fitted for appreciating the philosophic genius of Bacon; and his early and zealous friendship for their rival, the accomplished and unfortunate Earl of Essex, armed their prudence against him. They represented him to the Queen as a speculative man; a dangerous individual, therefore, in the realities of business. All that the Cecils ever procured for him was the reversion of the office of Registrar of the Star Chamber; an appointment which, to use Bacon's comparison, 'mended his prospect, but did not fill his barn.' It was twenty years before he received the salary of 1600*l*. per annum, connected with this situation. The exertions of Essex in behalf of Bacon were more hearty but less efficient. The office of solicitor-general becoming vacant, Essex endeavoured to procure the place for his friend, and when baffled by the superior influence of the Cecils, he generously made him a present of Twickenham Park, worth about 1800*l*., and so beautiful a spot, that Bacon called it 'a Garden of Paradise.'

The friendship of Bacon for this nobleman was not one of mere interest: and Essex made him this liberal present because he knew that Bacon's friendship for him had been a bar to his promotion. Bacon's zeal also in attaching his eldest brother to the interests of Essex, and braving the opposition of his own powerful relations in his cause, proves that, in this instance at least, selfish feelings did not influence his conduct. A coldness came over their friendship owing to difference of policy and opinion. Bacon in vain intreated Essex to desist from the proceedings which caused his ruin. They parted on bad terms in consequence. Bacon reckoned the last act of Essex no better than madness. When ruin closed round upon him, Bacon did not desert him. Risking and encountering the displeasure of the Queen on behalf of a friend, of whose conduct he did not approve, Bacon did every thing that ingenious remonstrance and affectionate intreaty could do with her Majesty in behalf of the ill-advised Earl. It is true, that at the command of her majesty, Bacon appeared as one of her majesty's counsel against his former friend; but not to mention the compulsion laid upon him by the duties of his office, and the risk of implication in the treasons of his patron, consequent upon refusal, the opportunity which it gave him of mitigating the severity of accusation,—of more effectually securing the interests of his friend at court—viewed, as these things ought to be, in connexion with the mildness of his manner of conducting the case, his choice of a part the least prominent possible, and the disinterestedness and dexterity with which he urged the Queen for the pardon and restoration of Essex, appear to place his conduct on this occasion in a light less equivocal than that in which it has been generally displayed by many of those who have narrated the circumstances. When commanded by the Queen and her counsel to draw up a declaration of the treasons of Robert Earl of Essex, it was found necessary to alter and embitter it considerably, the attachment of Bacon having softened down his statement so much that it was reckoned too mild for the nature of the case; and her majesty remarked on first reading it, 'I see old love is not easily forgotten.' The public judge only by appearances, and Bacon's conduct was accordingly much censured. In his own vindication, he addressed to one of the deceased earl's most devoted friends a letter, stating his conduct, and claiming merit to himself on grounds which perhaps will not satisfy those who require, in political friendships, the disinterested and self-sacrificing feelings of private attachment.

In 1592 Bacon was returned to parliament for the county of Middlesex, and distinguished himself in the debates by taking the popular side. His first political production was published in 1594. It was observations upon a libel, entitled *A Declaration of the Causes of the great Troubles*. It was charged with flattery to the queen and the ministry. But the praise never oversteps the modest truth, which history has confirmed, and the pamphlet is more a vindication of England than of its government. In 1596 his most popular work, *Essays or Counsels, Civil and Moral*, was published, and about the same time his *Maxims of Law*. His circumstances at this time were very bad: he was disappointed in his attempts at forming a lucrative matrimonial connexion, and twice arrested for debt. Two years afterwards his *History of the Alienation Office* was written: the MS. is in the Inner Temple Library. The question which it considers is, whether 'the profits ought to be lent out to farm or not;' and the principles of political economy on which the matter is decided, if they would scarcely stand the test of the present state of science, certainly display conspicuously his talents for such discussion. His *In felicem Memoriam Elizabethæ Angliæ Reginæ* was also written about this period. It was not published, however, until after his death, when it appeared, according to directions left in his will. This work, entitled in English *Felicities of Queen Elizabeth*, is a noble eulogium on the character of an illustrious princess, covering all the parts of her history with the eloquent praise of one whose admiration flowed fully, in spite of the fact that she had constantly obstructed and retarded his ambitious views and advancement. It was about the time this panegyric was written, that a second legal treatise appeared, called *The Use of the Law for the Preservation of our Persons, Goods, and Good Name, according to the laws and customs of this land.*

Upon the accession of James I. the fortunes of Bacon brightened. He had employed every art in order to make sure of his interest with the new monarch, writing to all the Scottish gentlemen of whom he possessed any knowledge to engage their influence and services in his behalf. His vigilance had its reward. On the 23rd of July, 1603, he was one of 237 gentlemen who received the honour of knighthood. His eloquence and information gave him great weight in the House of Commons. Having been appointed by the lower house to make a representation of the oppressions of the royal purveyors committed in the name of the king, he executed his delicate task with a degree of address, which combined prudence and boldness so well as to satisfy both the king and the parliament. The parliament gave him a vote of thanks, and the king made him one of his counsel. He received with this appointment, on the [illegible] of August, 1604, a pension of [illegible] a year, and [illegible] additional for the joint services of himself and his [illegible] Anthony Bacon; and he continued to rise in spite of the opposition of Cecil, now Earl of Salisbury, and the powerful rivalry of Sir Edward Coke, the attorney-general. *The Advancement of Learning* was published in [illegible]. Two years after he was made solicitor-general, and his professional diligence was crowned with distinguished success. His practice in Westminster Hall ex-

tended. Successful in his profession, and a favourite with the people, he added to his good fortune a rich wife, Alice, daughter of Benedict Barnham, Esq., a wealthy alderman of London. His address in stating the grievances of the nation to the king, an undertaking with which he was intrusted by the Commons, without lessening his influence at court, increased his popularity among the people. His speech on exchanging the ancient tenures of the crown for a competent revenue, advanced his reputation still higher by its clearness and eloquence. Though engrossed with the affairs of public life, his engagements did not turn him aside from his great design—formed in his early youth and cherished in his maturer years—the development of his improved plan for studying the sciences. He published the ground-work of his *Novum Organon Scientiarum*, his *Cogitata et Visa*, and sent copies of it to his learned friends for examination and criticism. The *Filum Labyrinthi* was the original draught of his *Cogitata et Visa*. The author of original and unpopular (because new) opinions in philosophy, Sir Francis Bacon, exercised the utmost prudence in the publication of his views, adapting the light to the visual organs of others so as rather to enlighten than to dazzle, and letting in no more rays into the dark chamber of science, which it was his purpose to light up, than was necessary gradually and effectually to increase its brightness into sunshine. This was not all. He gained a literary and philosophical reputation by writing on less perilous subjects, with the intention, as he frequently stated, of securing an amount of consideration and respect likely to protect and *bulwark* his peculiar and original opinions from the attacks to which they would necessarily be exposed on their first publication. This was the object of his next work, *The Wisdom of the Antients*, which was published in 1610. It prepared persons of all varieties of opinion for receiving with respect any thing that came from him · the admirers of the wisdom of our ancestors were conciliated by the discussion of a favourite theme, and the original thoughts clothed in beautiful and eloquent language, which he infused into a hackneyed discussion, pleased a higher class of readers.

In the year 1611 Bacon was a joint judge of the Knight Marshals' Court. In 1613 he was appointed attorney-general, and elected a member of the privy council On this occasion the House of Commons showed their regard for him in a particular manner. It was objected that a seat in the lower was incompatible with the duties of the attorney-general in the upper house of parliament. The objection was thought valid, but overruled in his particular case, in consideration of their regard for his services. His income was now considerable. His professional practice was great: the attorney-generalship was worth 6000*l.* per annum; as Registrar of the Star Chamber, he received 1600*l.*; and he had a good estate in Hertfordshire, and his father's seat of Gorhambury, by the death of his brother. An income like this, added to his wife's large fortune, might be supposed sufficient to remove all temptations to increase it by doubtful or dishonourable means.

While he was attorney-general Bacon was engaged professionally in several important cases. He was the king's agent against Peachum, a clergyman who was prosecuted for treason contained in a sermon never preached, and he exerted himself in getting the opinion of the judges before the trial, notwithstanding the unwillingness of Chief Justice Coke, and the illegality and injustice of such procedure. On the trial of the Earl and Countess of Somerset, for the murder of Sir Thomas Overbury in the Tower, he distinguished himself by the perspicuity and eloquence with which he conducted the prosecution.

It has been common to describe Bacon as a flatterer of persons in power. That he was a courtier is undeniable It must be mentioned to his praise, however, that he never paid his court to Somerset; and his connexion with Villiers was by no means one of servility and flattery, for he often acted independently, and his letters to him are full of advice, freedom, and sometimes reproof.

On the 7th of March, 1617, he was made lord keeper of the great seal, and on the 7th of May following he took office. During the King's visit to Scotland, the new lord keeper exercised considerable power; but he did not exercise it so as to please. His manœuvring to prevent a marriage between Sir John Villiers, brother of Buckingham the royal favourite, and a daughter of Sir Edward Coke, an alliance which would have increased the power of his rival, involved him in perplexity, and brought on him the resentment of Villiers. He also offended James by thinking ill of the projected marriage between the Prince of Wales and the Infanta of Spain. In many instances he acted in his high office in a way beneficial to the state. He several times refused to put the seals to the improvident grants of Buckingham. His prudence, however, enabled him to regain the favour and friendship which he lost by these proceedings, and his advancement continued. On the 4th of January, 1618, he reached the summit of his ambition in being appointed lord high chancellor of England, and by letters-patent dated Wanstead, 11th July, 1618, he was created Baron Verulam, and took his seat among the peers. Egerton, the old lord chancellor, had wished Bacon to be his successor, and Bacon himself wrote to the king soliciting the place on the grounds of his superior fitness for the office, and the ready flexibility with which he would accommodate himself to the will and wishes of his sovereign On putting the seals into his hands his Majesty gave him three advices, first, 'never to seal anything without mature deliberation; secondly, to give righteous judgments between parties with dispatch; and thirdly, not to extend the royal prerogative too far.' Bacon entered on his high office with great pomp, and delivered a long and eloquent speech on the advices of the king, in presence of many of the nobility. The influence of Buckingham had been exerted in his behalf, and his letter of thanks to that nobleman is truly eloquent and beautiful. Anxious to secure the 'golden opinions' of the profession, the new lord chancellor invited the judges to a dinner, and requested that, since it was not his intention to extend the power of the court of chancery beyond its ordinary limits, they would inform him if ever they were dissatisfied with his proceedings, in order to a mutual and satisfactory adjustment of matters. He introduced some reforms into his court. He caused two reporters to be appointed with a salary of 100*l.* each, and made some judicious arrangements in regard to hearing counsel and cases. On the 19th of November, 1619, he got the farming of the Alienation Office. Next year he was made Viscount St Alban's. In the beginning of 1620 he kept his birth-day with great state. Ben Jonson, the poet, celebrated his virtues, according to the fashion of the day, in some lines, which are part of a masque performed on the occasion. Bacon chose this favourable moment for the publication of his *Organon*. We have seen that it was the chief concern of his early thoughts and of his matured mind. In the midst of a rising career of professional, political, and literary effort, Bacon was moulding and shaping his great work, listening with an anxious ear to the remarks of the learned of his times, and at the height and maturity of his genius, when possessing all the highest honours which talent and learning could give him in his native land, we find this 'servant of posterity' committing to its slow but infallible tribunal a work which, in reference to science, has been universally pronounced—the judgment of reason and experience in this rare instance confirming the boastings of youth—*the greatest birth of time*. This work was the gradual formation of a creating spirit. It was wrought up and polished with the sedulous industry of an artist who labours for posterity. Like the *Analogy* of Butler, and all the greater productions of thought, the *Organon* of Bacon was the result of painstaking labour spread through many years. Besides the *Partus Temporis Maximus*, the *Cogitata et Visa*, and the *Filum Labyrinthi*, works which were outlines and model-figures prepared at distant and different stages of this long-studied production, Bacon copied his work twelve times, revising, correcting, and altering it year by year before it was reduced to that form in which it was committed to the press.

The reception of the work was such as, in the nature of things, must always be given to a production of its class—mingled ridicule and admiration. The geniuses laughed at it, and men of talent and acquirement, whose studies had narrowed their minds into particular channels, incapable of understanding its reasonings and appreciating its originality, turned wits for the purpose of ridiculing the new publication of the philosophic lord chancellor. Dr. Andrews, a forgotten wit of those days, perpetrated a vile pun upon the town and title of St. Alban's by saying, in some doggerel verses, that it was on the high road to *Dunce-table*, i.e., Dunstable, and therefore appropriate to the author of such a book. Mr. Secretary Cuffe said that it was a book which a fool could not have written, and a wise man would not. The pedantic king described it as like the peace of God,—it passeth all understanding. Bacon presented a copy to Sir

Edward Coke, on which there is still to be seen, in the handwriting of this eminent lawyer, the following reproof to the author for going out of his profession, with an allusion to his character as a prerogative lawyer, and his corrupt administration of the court of chancery.

> Edw Coke, ex dono authoris
> Auctori consilium
> Instaurare paras veterum documenta sophorum,
> Instaura leges justitiamque prius —Oct 1620

Under a device, on the title-page, of a ship passing through the pillars of Hercules, Coke wrote in a clumsy attempt at wit—

> It deserveth not to be read in schools
> But to be freighted in the ship of fools

Some who respected Bacon's character and office, remonstrated with the Lord Chancellor. Sir Thomas Bodley wrote to him, that it 'consisted of averment without other force of argument.' And he was represented by more than one man of distinction in those times as 'no great philosopher—a man rather of show than of depth, who wrote philosophy like a lord chancellor.'

He was understood by some. Ben Jonson, after the author's death, described the book in terms of the highest praise 'Though by the most of superficial men who cannot get beyond the title of *nominals*, it is not penetrated nor understood, it really openeth all defects of learning whatsoever My conceit of his person was never increased towards him by his place or honours But I have and do reverence him for the greatness that was only proper in himself, and in that he seemed to me ever by his work one of the greatest men and most worthy of admiration that had been in many ages' Though the king had expressed what doubtless he felt, the difficulty of understanding the work, he wrote to Bacon stating what it is likely was his sincere opinion, that he agreed with him in many of his remarks, and assured him that he could not have 'made choice of a subject more befitting his place and his universal and methodical knowledge Sir Henry Wotton, on receiving three copies, was highly complimentary 'Your lordship hath done a great and everliving benefit to all the children of nature, and to nature herself in her uttermost extent of latitude who never before had so noble nor so true an interpreter, never so inward a secretary of her cabinet On the continent the work was more highly honoured than at home, being esteemed by many of the most competent judges, as one of the most important accessions ever made to philosophy.

After this the glory of Bacon set for ever His name becomes tarnished with infamy The ordinary apologies for his conduct, the rapacity of his servants, and his connexion with Buckingham, fail entirely in washing out the foul blot fixed upon him by the facts of his conduct He was the victim of improvidence, a vice which gave him a perpetual craving for money to supply the wants which it created A desire of this kind, kept alive by the constant necessities which it caused to press upon him, undermined those honourable and honest principles in regard to pecuniary matters without which no man was ever either upright or respectable. Various writers have glozed over the disgraceful truths which belong to this period of an extraordinary life, and have thus deprived the world of the warning and instruction which they afford. The facts are almost too painful for minute statement, they increased in number and disgracefulness as the inquiry proceeded, and the two complaints and accusations which first occupied attention multiplied to upwards of twenty-four before the end of the proceedings Shortly after his elevation to the woolsack, one Wrenham, against whom he had decided a case in chancery, complained to the king, and though, when inquired into, the circumstances turned out in Bacon's favour, the industry and pertinacity of this individual excited suspicions in several quarters of the integrity of the chancellor. The House of Commons appointed a committee to inquire into the proceedings of the courts of law. On the 15th of March, 1620, Sir Robert Phillips reported, in a manner full of delicacy and respect to the high station and illustrious talents of Bacon, that two charges of corruption had been brought against the lord chancellor. The charges were sifted immediately. Eager to ascertain the exact particulars, to elicit the just amount and kind of blame attached to a personage so elevated, the committee sat every day on the case, and made daily reports to the house on the evidence brought before them. In the discussions on these facts though there were not wanting apologists and defenders of the conduct of this corrupt judge, the moral indignation of many of the members was expressed in terms of the strongest reprobation. The first case was of a poor gentleman of the name of Aubrey, who finding his suit in chancery going on with a ruinous slowness, was advised to quicken it by a gift to the lord chancellor. In his anxiety and distress he borrowed a hundred pounds from a usurer; Lord Bacon received the money Sir George Hastings and Mr Jenkins took the bribe in to the Lord Chancellor at his lodgings in Gray's Inn, and on coming out again assured the poor and anxious suitor in his lordship's name of thankfulness and success. The case was decided against him. When the chancellor heard of the complaints of his victim, he sent for his friend Sir George Hastings, and entreated him, with many professions of affection and esteem, to stay the clamour of the poor man whom he had cheated. The evidence in the next case varied the form and deepened the colours of the lord chancellor's guilt. Mr Egerton had several suits pending in chancery against Sir Rowland Egerton, and under the name of an expression of gratitude for past services, he presented the chancellor with 300*l*. The case went in his favour, until the opposite and losing party expressed his gratitude also to the judge in the shape of 400*l*, when the superiority of four over three turned the scales of equity against him. On one of these occasions, when the decision was drawn out though not delivered, the influence of a well-bestowed bribe induced the chancellor to reverse his decree The Lady Wharton, hearing that her suit was likely to go against her, was too clever and high spirited a woman to be defeated without a struggle She wrought a purse with her own hands, and having filled it with 100*l*, waited upon Bacon at his apartments, and begged his acceptance of a purse of her own making The chancellor was of course too gallant a gentleman 'to refuse anything from the hands of so fair a lady. She gained her cause

The discussion in the Commons issued in referring the whole of the case to the Peers, the only authority competent to subject him to trial. The king told a deputation of the Commons to proceed fearlessly whatever might be the consequences, and whoever might be implicated, but he felt exceedingly for the chancellor, received him with undiminished affection, and caused a short recess of Parliament to give him time for his defence. The spirit of Bacon was crushed within him His servants were undoubtedly the agents who sought out the victims of his corruption, and it is equally undoubted that their master was himself ruined by the rapacity and extravagance in which he permitted them to indulge During the investigation of the charges, when Bacon one day entered his house, and his costly menials rose up and saluted him, he said bitterly, 'Sit down, my masters, your rise has been my fall.' He was great even in such circumstances, and the native dignity of his mind shone out even through the disgrace in which he had clothed himself There is something inexpressibly touching in the contrition which he expressed in the general confession which he first sent to the lords appointed to try him.' This, however, did not satisfy the indignation of his judges They demanded a particular confession of each charge by itself, a specification of the minute details of his meanness and guilt. This Lord Bacon sent, and when a deputation of the lords waited upon him to inquire if this paper was his own voluntary act, he replied 'It is my act—my hand—my heart. O, my lords, spare a broken reed.' He was stripped of his offices, disqualified for public life, banished beyond the precincts of the court, subjected to a fine of 40,000*l*, and to imprisonment in the Tower during the king's pleasure.

He was confined for a short time in the Tower, and then discharged In the course of a few months he obtained a license to come for a time within the verge of the court. And though this sentence was afterwards commuted by the king, his ruined fortunes were never repaired, and we have seldom felt the degradation into which Bacon had sunk himself so painfully as when reading the words of his pardon for all the frauds, deceits, impostures, bribes, corruptions, and other mal-practices of which he had been found guilty. He was summoned to attend parliament before he died; but the remainder of his days were spent chiefly in scientific pursuits, and the society of the friends whom adversity had left him. His fame being high abroad, when the Marquis d'Effiat brought into England the princess Henrietta Maria, the wife of Charles I., he paid a

visit to Bacon, and was received by his lordship, who was lying sick in bed, with the curtains drawn. 'You resemble the angels (said that minister to him); we hear those beings continually talked of, we believe them superior to mankind, and we never have the consolation to see them.' His lordship replied, 'that if the charity of others compared him to an angel, his own infirmities told him he was a man.' Bacon's works on natural history, his *History of Henry VII.*, and some others, were published after his disgrace. Scientific pursuits were his consolation, and at last caused his death. The father of experimental philosophy was the martyr of an experiment. The retort which he was using burst, and parts of it struck his head and stomach. Fever and defluxion were the consequence. We have no particular account of his death. His last letter was written to the earl of Arundel, in whose house at Highgate he expired on the 9th of April, 1626, in his sixty-sixth year. In this letter he calls himself the 'martyr of science,' and compares himself to Pliny the elder, whose death was caused by his over-zealous observation of Vesuvius. In his will he says, 'My name and memory I leave to foreign nations, and to my own countrymen, after some time be passed over.' Lord Bacon left no children.

The accomplishments of Lord Bacon were unrivalled in his day, and his character displayed the phenomenon of great originality combined with a most extensive range of acquirements. He was a poet and an orator, a lawyer and a statesman. In the philosophy of experiment and of observation he was pre-eminent. The metaphysical and the physical were both congenial to his genius; and although the taint of his immorality has induced many to doubt the extent and to depreciate the excellence of his knowledge and ability in every department, except his method of studying nature, an impartial and searching examination will fill us with admiration as we successively trace his steps in almost every branch of intellectual exertion.

The mind of Bacon was poetical: his works abound in imagery. It is true that small wits have ridiculed all his poetical pretensions, because in his version of the Psalms he says that 'man's life hangs on brittle pins,' and speaks of

The great Leviathan
That makes the seas to seeth like boiling pan.

Still we find in Lord Bacon's verses many vigorous lines, and some passages of great beauty.

The merits of Bacon as an orator were, in the opinion of Ben Jonson, the most competent critic of his age, confirmed as it is by the testimony of Francis Osborne, and the effects of his eloquence, undoubtedly not equalled in his own time. Sir Walter Raleigh reckoned him the only man of his day who was equally eminent as a writer and a speaker. The following passage, from Jonson, is a remarkable one: its discrimination and its raciness give weight to the opinion which it expresses:

'There happened in my time one noble speaker who was full of gravity in his speaking. His language, when he could spare or pass by a jest, nobly censorious. No man ever spake more neatly, more prisly, more weightily, or suffered less emptiness, less idleness in what he uttered. No member of his speech but consisted of his own graces; his hearers could not cough nor look aside from him without loss. He commanded when he spoke; and his judges were pleased and angry at his devotion. No man had their affections more in his power. The fear of every man that heard him was lest he should make an end. Cicero is said to be the only wit that the people of Rome had equalled to their empire. *Ingenium par imperio.* We have had many, and in their several ages (to take in but the former age), Sir Thomas More, the elder Wiat, Henry Earl of Surrey, Chaloner, Smith, Cliot, Bishop Gardiner, were for their times admirable, and the more because they began eloquence with us. Sir Nicholas Bacon, singular and almost alone in the beginning of Queen Elizabeth's times. Sir Philip Sydney and Mr. Hooker (in different matter) grave, great masters of wit and language, and in whom all vigour of invention and strength of judgment met. The Earl of Essex noble and high, and Sir Walter Raleigh not to be contemned for judgment or style, Sir Henry Savill grave and truly lettered, Sir Edwin Sands excellent in both; Lord Egerton, the chancellor, a grave and great orator, and best when he was provoked. But his learned and able (though unfortunate successor) is he who hath filled up all numbers, and performed that in our own tongue which may be compared or preferred either to insolent Greece or haughty Rome; in short, within his view and about his time were all the wits born that could honour a language or help study. Now things daily fall: wits grow downwards, eloquence grows backwards, so that he may be named and stand as the mark and ἀκμή of our language.'

The observations and experiments of Bacon in physical science, viewed beside the results obtained by his immediate successors, do not appear to great advantage: nor can we compare them at all with the brilliant discoveries of his contemporary Galileo. It is only when viewed with reference to the *general* state of knowledge in his own times, that Bacon's recorded experiments and observations can be fairly estimated. His merits indeed would have been greater than those of any experimental philosopher, were his discoveries at all equal to the method of studying science which he taught.

In the first part of his great work on the *Instauration of the Sciences*, Bacon proposed to make a survey of knowledge as it then existed, which was a necessary preliminary to the reform which he contemplated. In this work he has made a distribution of all knowledge under the three heads of Memory, Imagination, and Reason. This division has been occasionally adopted by subsequent writers, though it does not appear to have the recommendation either of exactness or utility. The *Novum Organum*, which is divided into two books, is the second part of the *Instauration*. In the first book of the *Organum* Bacon attempted to point out the states of mind which caused the existence of a false and fruitless philosophy. He saw causes of error in our common nature—in the peculiarities which mark the individual—in the mental use of the symbols of thought, and in those sectarian and party habits which the processes of association interweave with all the elements of the character, and harden into the schools and creeds which exert a despotic sway over successive generations. The influence of these mental states upon the interpreters of nature, Bacon called the worship of an idol; and the states themselves, in his fanciful nomenclature, are idols of different kinds: those which proceed from principles common to the species are *idols of the tribe*; those produced by the peculiar character of the individual are *idols of the den*; the commerce or intercourse of society by the use of words causes the worship of the *idols of the forum*; and the *idols of the theatre* are the creatures of the imaginary and visionary systems of philosophy which have appeared. Some causes of error are universal; the undue love of simplicity, and the spirit of system, are illusions influencing every mind, and therefore perpetually opposing the advancement of real knowledge. Other causes of error are peculiar. Some are disposed to mark the differences and others the resemblances of things, and the peculiar studies of a single mind are apt to warp its views in other regions of thought. Words influence thoughts, and the subtlety of the processes of the mind in using them is a source of error affecting the operations of the intellect and the communication of its results. The perverse influence of systems is obvious; it is illustrated fully by the history of philosophy. The undue reverence for antiquity, the authority of names, the pursuit of unattainable objects, the examination only of the rare, the extraordinary, and the great, together with superstition, which Bacon does not forget to enumerate, had long opposed the progress of all true knowledge.

In the first part of the *Organum*, the true object of science is clearly pointed out by Bacon: 'It is impossible,' he says, 'to advance with any profit in the race, when the point to be attained is not distinctly determined. In science, the true end is to enrich human life with new discoveries and wealth.' (*Organum*, lib. i. aphorism. 81.) In the second book Bacon proceeds to explain the method of studying nature which he proposed for the advancement of science.

The first thing is to prepare a history of the phenomena to be explained, in all their modifications and varieties, written with the utmost caution and care in regard to the correctness of the language employed, and the evidence of the facts which we narrate. Having brought together the facts, we must begin by considering what things they exclude from the number of possible causes, or *forms* as they are called in the language of Bacon. Negative instances in which the supposed *form* is wanting ought to be collected. 'It may perhaps (says Bacon) be competent to angels or superior intelligences to determine the form or essence directly by affirmations from the first consideration of the subject. But it is certainly beyond the power of

man, to whom it is only given at first to proceed by negatives, and in the last place, to end in an *affirmation* after the exclusion of everything else.'

The observations and experiments of the natural philosopher—the facts which he is to record in his inductive history—are witnesses whose evidence, and the weight due to whose testimonies, vary in the same way as the evidences which form the grounds of moral investigations. The facts or *instances*, as Bacon calls them, vary in clearness, in authenticity, applicability, &c. Bacon enumerates twenty-seven different kinds of *instances*, and estimates the weight due to each from the peculiar circumstances which constitute their value or worthlessness as means of discovery and aids to investigation; but it is impossible, in this outline, to enter into a description of their nature and importance. Of these twenty-seven instances fifteen are enumerated to assist the understanding in estimating the value, and forming a right judgment, of different facts; five correct the fallacies of the senses and instruct them in their observations; and the remaining seven direct the hands 'in raising the superstructure of art on the foundation of science.' This last division includes the use of instruments in aiding the senses, in subjecting objects to alteration for the purpose of observing them better, and in the production of that alliance of knowledge and power which has, in our day, crowded every part of civilized life with the most useful inventions.

Such were the principles which Bacon shaped into rules for the conduct of experimental inquiries, when he was almost without an example of success to confirm his confidence and encourage his efforts. In the words of Professor Playfair, 'the power and compass of the mind which could form such a plan beforehand, and trace not merely the outline but many of the most minute ramifications of sciences which did not yet exist, must be an object of admiration to all succeeding ages.'

The great merit of Bacon undoubtedly consists in the systematic method which he laid down for prosecuting philosophical investigation; and his services in this department cannot easily be overrated. At the present day, those especially who busy themselves with physical pursuits would often do well to recur to the severe and rigorous principles of the *Organum*.

The praise that is generally given to Lord Bacon is, we are aware, considered by some to be at least extravagant and indiscriminating. However this may be, there is no occasion to exalt him, as is sometimes done, at the expense of all who have preceded him. It is not unusual to represent Bacon as freeing the human mind from the chains of the Aristotelian philosophy; and this assertion is conveyed in such terms as to imply, or even distinctly to express, that observation, experiment, and what is termed the inductive philosophy, or the Baconian method, were not practised by Aristotle and others, his contemporaries and successors, in their inquiries into the phenomena of nature. Such statements are perhaps hardly worth confuting. The science of geology has now taught us that the surface of the earth is undergoing continual change: the facts collected by Aristotle as to the action of water led him to infer that on the surface of the earth all is in a state of change,—that lakes are filling up, that rivers have not always flowed where rivers are now flowing, and that the land and sea in the long course of time change their places. (*Meteorolog.* lib. i.)

The greater part of Bacon's works were written in English, but some were written in Latin, and others were translated into that language. We shall mention only the principal works. His *Felicities of Queen Elizabeth's Reign* was first written in English, and then revised, corrected, and turned into Latin. His work of the *Advancement of Learning* was partly written in English and partly in Latin; and he caused the first part written in English to be translated into Latin for him by a gentleman of the name of Herbert and some others. His *Cogitata et Visa* was written in Latin. *Of the Wisdom of the Antients* and the *Novum Organum* were written and published in Latin, and several translations of them have appeared. The best edition of his works is the last published, in royal 8vo., by Basil Montague, Esq., and completed in 1831. An *Account of Lord Bacon's Novum Orgahum* has been published under the superintendence of the Society for the Diffusion of Useful Knowledge.

BACON, JOHN, was born on the 24th of November, 1740, at Southwark, in Surrey, where his father carried on the trade of a cloth-worker. He showed at a very early age a taste for drawing, and was apprenticed when fourteen to Mr. Crispe of Bow Church-yard, a porcelain manufacturer, where he learned the art of painting on china, and also of making those little ornamental figures in that material which are still frequently seen on mantelpieces. It is an extraordinary proof of talent that in the second year of his apprenticeship he was intrusted with the formation of all the models for the manufactory; and it is a still higher praise that at this early age he contributed essentially to the support of his parents, then in reduced circumstances. The transition from modelling to sculpture was natural, and Bacon's profession was soon determined. It was the practice of sculptors at that time to send their clay models, for the purpose of being burnt, to the pottery where he was employed, and in these works he soon discerned a style far superior to that to which he had been accustomed; the next step was to imitate what he admired, and from this time his leisure was zealously devoted to his new pursuit. In 1758, being then eighteen, he ventured to send a small figure of Peace to the Society for the Encouragement of Arts; it was favourably received, and he was rewarded with a premium of ten guineas. The first premiums of this institution were adjudged to him on nine different occasions.

The discovery of the art of making statues in artificial stone (cement) has been ascribed to Bacon, but although there is reason to believe that the invention was of prior date, he is unquestionably entitled to the praise of having facilitated the process of that art, and of rendering it popular. He laboured during a considerable time in Coade's manufactory at Lambeth, where not only figures, but every species of architectural and monumental ornaments, were made in stone, and by his exertions retrieved the credit of the declining establishment. On the institution of the Royal Academy in 1768, he entered himself as a student, and the next year gained the first gold medal for sculpture which was awarded by that society. In 1770 he was elected an associate of the same corporation. He exhibited about this time a statue of Mars, which brought him a great accession of reputation, and procured him the personal notice of the Archbishop of York, who commissioned him to execute a bust of George III. By this prelate Bacon was introduced to the king, who sat to him, and the artist had the good fortune to gain the royal favour by the general simplicity and propriety of his manners. Bacon, sensible of the advantage which he had thus got, took care to maintain it, and during his whole professional career he succeeded in securing the king's favour against all competition.

About this time Bacon married, and removed from the small and inconvenient apartments which he had previously occupied to a spacious house in Newman Street, the premises, it is said, having been fitted up with studies, workshops, &c., without his knowledge, by the liberality of a friend, who left the affair of payment to his own convenience. Every circumstance now tended to his prosperity; he was employed by public bodies, as well as by various private individuals, and his profits were greatly augmented by the use of an ingenious instrument of his own invention, which facilitated the process of copying the clay model in marble, and by which he was enabled to execute his figures in half the time previously required. In 1777 he was engaged to erect a monument for Guy's Hospital, Southwark, in honour of its founder. The merit of this work procured him a commission for the monument of the Earl of Chatham, now in Guildhall. This performance furnishes high and incontestable proof of Bacon's abilities, but it exhibits at the same time the prevalent defects of his style. Lord Chatham's attitude is oratorical and commanding, and the allegory of Britannia receiving from Industry and Commerce the contributions of the four quarters of the Globe, is perspicuously expressed. The whole effect is well entitled to the epithet 'magnificent,' bestowed on it by the critics of the day. There is a richness in the whole by which the eye is irresistibly captivated, but the flowing and redundant lines which conduce to that impression are at variance with the simple and severe principles of the highest style of sculpture. Bacon indeed was continually accused by his rivals of a deficiency in that true taste which is established on a knowledge of the antique. In order to refute these imputations, he modelled, apparently in imitation of a stratagem practised by Michael Angelo, a head of Jupiter Tonans, which he [illegible] to give it a look of antiquity, and passed it off for a genuine fragment. The

critics were deceived; but what do such deceptions prove? Do they diminish the value of antient art, or are they any proof of skill in the modern imitator? Certainly not. To give his work an appearance of the *general style* of the antique is within reach of the humblest practitioner, but that slender capability furnishes no proof of a profound acquaintance with the principles of antient art. Bacon stood on higher ground, when he candidly disclaimed any pretensions to that knowledge which he was accused of wanting, asserting that in the study of living nature he sought for excellence where the antients had found it.

His want of the refined perception of beauty was one of the causes of his extraordinary professional success. Bacon's power lay in the plain realities of life, and whatever illustrations he employed were of the most popular character, and understood at once by the multitude. 'His Generosity,' as one of his biographers has amusingly expressed it, 'has her pelican; his Sensibility her sensitive plant, Commerce her compass, and Manufacture her spinning-jenny.' Symbols like these lay no tax either on the learning or the imagination of the spectator, and thus it was that Bacon's works became universally popular, while the productions of men of higher qualifications were comparatively neglected.

In 1780 Bacon received commissions for the monument to Lord Halifax in Westminster Abbey; the statue of Blackstone for All Souls' College, Oxford; that of Henry VI. for the Ante-Chapel at Eton; and for the ornamental groups in front of Somerset House. The recumbent figure of 'Thames' in the court-yard of that edifice is also by him. When it was proposed by Government to erect a monument to the Earl of Chatham in Westminster Abbey, the various artists were invited by the committee of taste to send in designs. The power of deciding on this competition, and of nominating the artist to be employed, was at that time conceded to the Royal Academy; and however injudicious this practice might have been, Bacon owed at least some deference to the rules of a society of which he himself was a member. He preferred, however, availing himself of his private influence with the king, and having procured an audience for the purpose of showing his model, obtained his Majesty's commands to make the monument. His academic brethren were deeply indignant at this manœuvre, but they had too much policy to express their resentment. A much deeper subject of offence was in store for them. Bacon, in the true spirit of a trading speculator, actually made a proffer to Government to make all the national monuments at a certain per-centage below the parliamentary price. His proposal was rejected, but neither with the promptitude nor the contempt which was due to it. It is but fair to infer, as Bacon had many and zealous friends, that the defects of his character were tempered by a large admixture of better qualities. His character, in the private relationships of life, was said to be blameless; and although it is admitted that he was somewhat penurious in the management of his household, it is also said that he sometimes gave large sums to public charities. No particular instances, however, have been mentioned. He was eminently loyal, and during the threat of French invasion he had his workmen armed and drilled for military service, and he published some tracts with the view of preventing the spread of revolutionary principles.

So numerous are his works, that to enumerate them all, or to specify the precise order in which they were executed, would be difficult. Among the principal may be reckoned, the monument to Lord Halifax in Westminster Abbey, the statue of Blackstone at All Souls' College, Oxford, that of Henry VI. in the Ante-Chapel at Eton, and those of Howard and Johnson in St. Paul's Cathedral. The two last especially are fine examples of the sculptor's powers. Benevolence and philanthropy beam from the countenance of Howard, as, holding in one hand a key, in the other a plan for the amelioration of prison discipline, he prepares to descend into the dungeons of misery. The figure of Johnson is equally characteristic. To those already enumerated may be added the statues of Mars, Venus, and Narcissus; the monument at Worcester, in memory of Mrs. Withers; that for the founder of Guy's Hospital; a statue of Mrs. Draper (Sterne's Eliza), in the Cathedral of Bristol; some figures, executed for the Duke of Richmond, now at Goodwood; and the pediment of the East India House. It was part of Bacon's good-fortune to have his works distributed and his fame extended over various parts of the globe. In Jamaica are his monuments of Doctor Anderson and of the Earl and Countess of Effingham; at Calcutta the statue of Lord Cornwallis, grouped with appropriate figures; and various other of his productions are scattered through the dependencies of the British empire. At the time of his death he left unfinished the following monuments: that of General Dundas for St. Paul's; Captains Harvey and Hutt, for Westminster Abbey; the above-mentioned of Marquess Cornwallis; Mr. Whitbread; the poet Mason; the Rev. Joseph Milner; and an equestrian statue of William III. for St. James's Square; with others of less importance. Like most eminent sculptors, Bacon was a skilful worker in bronze.

Bacon died on the 4th of August, 1799. He had been twice married, and left two sons and three daughters by his first wife; by his second, three sons. The works which he left incomplete he directed to be finished by his second son, John Bacon. His wealth, amounting to sixty thousand pounds, he divided equally among his children. He was buried in Whitefield's Chapel, Tottenham Court Road, London; and the following inscription, by himself, was placed on a plain tablet over his grave:—'What I was as an artist seemed to me of some importance while I lived; but what I really was as a believer in Jesus Christ is the only thing of importance to me now.' (Cecil; Allan Cunningham.)

BACS, or BATS-BODROGH, a considerable circle in the south of Hungary, between the Danube and the Theiss; the banks of the former river constituting its western and southern boundaries, and those of the latter its eastern. On the north it adjoins the circles of Pesth and Csongrád. Its surface, with the exception of a semicircular and rather elevated plateau, arching to the south, between Szatanisits above Zombor and Maria-Theresiopel, is an uninterrupted plain, and contains 3586 square miles. The plateau just mentioned, termed the 'Teletskan Hills,' is situated immediately north of what are called 'the lesser and greater Roman entrenchments,' which extend in a serpentine line from Apatin near the Danube to Földvar on the Theiss, but are supposed by some writers to be the 'Ringi' raised by the Avari. Between these entrenchments and the Teletskan Hills runs the great Bacser, or Emperor Francis' Canal, which commences above Monostorszegh on the Danube, passes Zombor, Kula, Verbasz, St. Tomas, and Turia, and joins the Danube at Földvar; it was constructed, at an expense of 300,000*l.*, between the years 1796 and 1802; it is nearly seventy miles in length, and has a breadth of sixty-two feet, and a depth varying from four to six feet. About 700 laden vessels navigate it annually, many of which are from 250 to 300 tons burthen, besides upwards of 300 vessels in ballast. The circle contains no stream of note besides the Mosztonga, which flows with a sluggish current, forming numberless swamps in its course, into the Danube near Bukin. There are several large sheets of water in this circle, such as the salt lake of Polity, near Maria-Theresiopel, and the adjoining lake Ludasto. Its soil is in parts of such great natural fertility as not to require manuring; in others it is so arid and sandy as to be scarcely available for any useful purpose: the latter is more especially the character of many districts around Maria-Theresiopel, Madaros, Bája, and Monostor, as well as the 'Prædia' (domains of the Hungarian sees, which have their own civil jurisdiction under the diocesan's palatine, and are exempt from public taxes), in the northern part of Bacs. The productive portion of its surface is estimated at 1,250,000 jochs (about 1,785,700 acres), of which nearly one-half is arable land. In consequence of the swamps, its climate is in general insalubrious. Though husbandry is not carried on with any degree of energy, Bacs seldom produces less than 450,000 quarters, and, in favourable seasons, 650,000 quarters of grain; its wheat in particular is in great request, from the excellence of its quality, and is exported in large quantities. The vineyards occupy 88,120 acres, and an abundance of wine is made in the neighbourhood of Maria-Theresiopel, Bája, Zambor, and the Francis' Canal. Fruit is largely produced; hemp is cultivated to a great extent; and a good quality of tobacco is raised on the 'Szállàse,' or isolated farms, which are an institution peculiar, we believe, to Hungary. Madder and woad are grown near Apatin. Woods, particularly of oak, abound along the banks of the Danube, but their whole extent does not exceed 172,170 acres; hence the lower classes are compelled to use straw, dried rushes, and cattle-dung for their fuel. The 552,850 acres of pasturage which Bacs contains are used for the rearing of cattle, horses, and sheep in considerable numbers and of excellent breeds.

the traffic in these animals, as well as in wool and hides, is carried on to a large amount The swine in this quarter are frequently fed upon the fish which are caught in the swamps formed by the irruption and subsequent reflux of the Theiss. Silk is raised in the environs of Apatin, and the fisheries on the Danube and Theiss are a source of no inconsiderable wealth to the inhabitants Water-fowl are likewise abundant. Bacs contains neither metals nor stone. Its 370,000 inhabitants, of whom 220,000 are Roman Catholics, and 5000 Jews, are dispersed over three royal free towns, Maria-Theresiopel Zombor (the capital), and Neusatz, fifteen market-towns, ninety-six villages, and ninety-one prædia, besides szallase, &c. The people are far behind in respect to education, and theft, particularly in the rural districts, is very common steps are, however, taking to remedy the evil by the institution of national schools (*Statistics and Geography of Hungary* (1832). Csaplovic's *Description of Hungary*, Grafter's *Dictionary*, &c)

BACS-BATSCH, on the Mosztonga rivulet, north-west of Neusatz, in 45° 21′ N lat, and 19° 14′ E long, is a slightly-fortified town, situated in a fertile plain, and the seat of the chapter of the Greek bishop of Bacs, who is also archbishop of Calotsza It is the chief place of the minor circle of the same name, possesses a Greek church and a Franciscan monastery, has a population of 7500 souls, and carries on considerable trade

BACTRIA, or BACTRIA'NA (now BOKHARA) The province of Aria was bounded partly on the north, and to a greater extent on the east, by Bactria The river Oxus was the boundary between Bactria and Sogdiana, which lay to the east of Bactria, and was possessed by the Greek kings of this province (Strabo, p 517) The northern boundary of Bactria was naturally indefinite, and the western was Margiana These limits, which mark the extent of Bactria as a province or satrapy, do not of course correspond with the more extended limits of the Greek Bactrian kingdom The province of Bactria was a territory of great extent, partly barren and waste, but in many parts of great fertility, watered by the Oxus and its tributary streams, and peopled by a brave and hardy race, who were reckoned amongst the best soldiers in the service of Persia after Bactria became a Persian province The chief city was Bactra, called also Zariaspa, situated on the Bactros, one of the tributary rivers of the Oxus. Of Bactria little is known prior to its subjugation by the Macedonians under Alexander the Great The account of an expedition against it by Osymandyas the Egyptian, merits no confidence, and those of Ninus and Semiramis perhaps not much more According to Herodotus, Cyrus, having defeated Crœsus, intended to invade Bactria and (according to Ctesias) after a drawn battle, the Bactrians voluntarily surrendered themselves to him A short time before his death he appointed his youngest son, Tanyaxarces, the brother of Cambyses, to be satrap or governor of Bactria and the circumjacent countries he was treacherously put to death by Cambyses. In the reign of Darius I the Bactrians paid a tribute to that monarch of 360 talents In the time of Xerxes there were Bactrians in the army which he led against Greece, who were under the command of Hystaspes, a son of Darius by Atossa, a daughter of Cyrus The province continued to be governed by the satraps of Persia down to the time of Darius Codomannus. In the final overthrow of that king by Alexander the Great, at the battle of Arbela or Gaugamela, there was a body of Bactrians in his service who were under the command of Bessus, the satrap of Bactria, they were stationed in the left wing, and behaved with great bravery After the conquest of Bactria by Alexander he appointed Artabazus, a Persian, as governor, with Macedonian garrisons in the towns Shortly afterwards they were attacked by the Scythians, joined by the people of Sogdiana and some Bactrians, the whole under the command of Spitamenes, who slew the garrisons and fortified themselves They were attacked in their turn by Alexander, who stormed seven of their cities, and among them Cyropolis, the strongest of the whole. His next step was to build a city, which he walled in twenty days, and gave to his Greek mercenaries and to such of the Macedonians as were unfit from age or wounds for longer service. Such was the foundation of the Greek colony of Bactria, to which volunteers from the neighbouring countries were admitted. This, however, was not the earliest settlement of Greeks in Bactria; for the first Darius transplanted there a number of Greeks from Barce, in Africa (Herod. iv. 204); and the Branchidæ also, from Ionia, were planted here by Xerxes I (Strabo, p 517.) Artabazus was shortly afterwards displaced by Alexander on account of his age, and Amyntas appointed in his stead. Cœnus, with his own and Meleager's forces, a small troop of cavalry, and all the mounted spearmen, were left for the protection of the colony, and Amyntas was directed to follow the orders of Cœnus The colony was again attacked by Spitamenes, who, being defeated by Cœnus in an engagement, concealed himself in the deserts of the Scythians and Massagetæ, but being seized by them, he was put to death, and his head was sent to Alexander. Soon after, Alexander went on his Indian expedition, leaving a force with Amyntas of 10,000 foot and 3500 horse. (Arrian, iv 22.) From the death of Alexander, 323 years B.C., to 255 B.C., Bactria constituted part of the possessions of Seleucus and his successors, and was governed by their satraps. About the last-mentioned date Theodotus, in the reign of Antiochus II, of Syria, assumed the government, and founded an empire which lasted 122 years. A difference of opinion exists as to the names and number of the Greek kings of Bactria during this period, we here give a list of them according to Bayer and Schlegel —

B C	*Bayer*	B C	*Schlegel*	
255	Theodotus I (or Diodotus)	255	Theodotus I	
243	Theodotus II	243	Theodotus II	
220	Euthydemus	220	Euthydemus	
196	Menander	195	Apollodotus Soter Menander Nicator	Alluded to by Plutarch, Trogus, and Arrian
181	Eucratides I		Heliocles Dikaios	On the authority of Visconti and Mionnet from a single medal.
146	Eucratides II.		Demetrius	
		181	Eucratides I	
		146	Eucratides II	

In the early part of the reign of Theodotus I the Parthians under Arsaces got possession of Hyrcania at the close of his reign he prepared to make war on the Parthians. Whether any war took place, and with what success on either side, can only be conjectured Theodotus II, the son of Theodotus I, according to Justin, made peace with Arsaces II, and entered into a league with him against Seleucus Callinicus, the son of Antiochus

Euthydemus, a native of Magnesia, dethroned Theodotus II and usurped the kingdom About 208 B C Antiochus the Great attacked him with a large army, intending to reduce Bactria to a province of his empire. Euthydemus made a vigorous defence but was defeated, and fled to Zariaspa. The war being, however, protracted to the third year, and beyond the expectation of Antiochus, he sent Teleas as ambassador to Euthydemus, to expostulate with him on his conduct. Euthydemus justified his usurpation by alleging that he had not rebelled against Antiochus, but had destroyed those who had He urged the necessity of peace on account of the difficulty of restraining the Nomadic tribes on his borders, who were alike dangerous to them both, and who, if they should gain admittance into Bactria, would reduce the whole country to a state of barbarism. Antiochus was convinced by these arguments, and, after much negotiation, terms were agreed on, and Euthydemus sent his son Demetrius to ratify the treaty, by which it was agreed that Euthydemus should deliver up all his elephants, but should retain the title of king This treaty was confirmed by oath, and Antiochus promised to give Demetrius one of his daughters in marriage Antiochus then went into India with his army, and finally returned by Carmania to his own dominions We shall presently notice Demetrius again he does not appear to have succeeded his father on the Bactrian throne

Of Menander, the fourth king of Bactria according to Bayer, little is known, but from a passage in Plutarch it appears he ruled the kingdom with so much justice and moderation, that when he died in his camp a contest arose amongst the cities of his kingdom which should possess his ashes, and it was with difficulty settled by an equal division of them and the dedication of a monument in every city. Of the time of his accession, as well as of his right to the throne, we are equally ignorant. He is conjectured by Bayer to have been a Greek king of India, and to have got possession of Bactria by force. Of Apollodotus Soter and Heliocles Dikaios nothing is known. Eucratides I., according to Bayer, succeeded Menander: his o[illegible] unkno[illegible]n. It has been supposed that he was the son o[illegible]etrius and grandson of Euthydemus; but, according to [illegible]r, without foundation. He appears to have been a warlike monarch, to have waged a successful war in India against a King Demetrius, and to have founded a city named after him Eu-

cratideia on his coin he styles himself the Great King Justin relates that he was assassinated on his return from his Indian expedition by his son, also named Eucratides, who had been associated by his father in the government

Eucratides II reigned twelve years, according to Bayer, when the kingdom was overrun by the Scythians, or Sacæ and the government of the Greek kings of Bactria terminated by the country becoming a part of the Parthian empire. This event happened about the year 134 B C but, according to Schlegel, 125, making the reign of Eucratides II of twenty-one years duration From that time to the present this kingdom has undergone various changes of dynasty, and submitted to different conquerors The reader is referred to the articles in this work, for the present state of the country (See Arrian, Quintus Curtius Strabo lib xi, Justin, lib xli, T. F. Bayer, *Historia Regni Græcorum Bactriani*, Petropol 1738, and the authors quoted by him)

Of late years travellers have made small collections of Bactrian coins, which throw some light on the history of Bactria of these the most extensive is that of Lieutenant Burnes (See *Notes* by Mr Prinsep and Professor Wilson in the *Appendix to Burnes Travels*) Some of these coins were found at Khoju Oban the ruins of an antient city thirty miles north west of Bokhara One a coin of Euthydemus is similar, but, as far as we can judge from the engraving in Burnes' *Travels*, much inferior to the coin here given Another, presenting a different profile is erroneously supposed to be a Demetrius Three other silver coins with defaced inscriptions, appear to differ very little in character from the coin of Euthydemus and may perhaps be considered coins of the same king though they are of inferior workmanship There is a very curious coin a silver tetradrachm, with an inscription on one side, in the Pehlevi character some of the letters resembling badly executed Greek the form, on the reverse, is similar in design to the reverse of Euthydemus, but the head, on the obverse has the character of the Arsacidan coins It seems to have been an imitation of the Greek type of coinage representing perhaps, the barbarian conqueror who overthrew the Greek Bactrian dynasty A copper coin found in the neighbourhood of Manykyala, is, however by far the most curious of all the inscription is not quite perfect but Mr Prinsep argues with some appearance of probability, that it is the coin of Kanishka, a Tartar or Scythian conqueror of Bactria who may by possibility be the individual who overthrew the Bactrian dynasty 134 years B C (according to Schlegel 125) Mr Prinsep is also of opinion that the small copper coins found at Manykyala, having a horseman on the reverse may be considered as belonging to Eucratides I A square copper coin found at Shorkoth may, from the inscription ΒΑΣΙΛΕΩΣ ΝΙΚΑΤΟΡΟΣ, be ascribed with some appearance of probability, to Menander the obverse however agrees better with the coin of Apollodotus found by Colonel Tod at Surapura on the Jumna, between Agra and Etawah Colonel Tod found at the same place a square coin which he ascribes to Menander, the inscription on the reverse is however, in the Zend character (See Mr Prinsep and Professor Wilson s *Notes on Lieutenant Burnes s Coins* and *Transactions of the Royal Asiatic Society*) Besides the Greek Bactrian coins, Lieutenant Burnes found Indo Grecian, Indo Scythian, and Hindu coins, with some engraved gems.

Meyendorff, in his travels in Bokhara, became possessed of a large coin of Demetrius, the son of Euthydemus (See the coin copied from the engraving in Meyendorff s *Travels*) The head of Demetrius is covered with a casque in the form of an elephant s head, the diadem—a mark of royalty— encircles his brow The reverse is supposed by Meyendorff to be intended to represent Demetrius, with the attributes of Hercules, a lion s skin hangs over and falls from his left arm, in his left hand is a club, and with the right he places a crown of poplar leaves on his head, underneath is the monogram ΚΡΑ (The text in the French copy of Meyendorff has ΚΡΑ) Meyendorff is of opinion that this coin is of Bactrian workmanship. (See p 322, *Voyage d'Orenbourg à Boukhara fait en* 1820. Paris, 1826) It is however superior, in point of design and execution, to the Greek Bactrian coins in the British Museum.

This coin proves that Demetrius was a king, although perhaps not of Bactria. He possessed great talents, and when sent by his father Euthydemus to Antiochus, he was so successful in his embassy, that Antiochus not only concluded a treaty with him, which consolidated the power of his father, but gave him one of his daughters in marriage. (Polyb *Rel* lxi c 34, pp 379, 380 Ed Schw) These events occurred in the second year of the 143 Olympiad, B C 207 Demetrius was a victorious prince In conjunction with Menander, who was king of Bactria after Euthydemus, he conquered, as far as the Hypanis or Hyphasis, the extensive provinces which formed the possessions of Porus from thence he pushed his conquests as far as the Imaus (the Himalaya mountains) and having become master of this territory once the dominions of Sandrocottus he gained possession of Pattalene—an island formed by the mouths of the Indus He conquered also, all that part of India which lies on both sides of the Ganges and the country of the Seres It is very probable that he founded the two towns of Demetrias and Euthydemia, one in Arachosia, the other near the Indus As we have no authority to show that he reigned in Bactria, we must conclude that from these conquests he founded an independent empire This he governed more than sixty years, and was at length, after a long struggle, in which victory often wavered, conquered by Eucratides I, king of Bactria who took possession of his extensive dominions (Justin)

According to Bayer, Demetrius would have been eighty-seven years of age when he was conquered by Eucratides (Bayer p 93)

It appears from two medals of Eucratides I which Meyendorff published in 1822—one (belonging to Sir Gore Ouseley) representing him in early youth the other (in the cabinet of medals of the Imperial Academy of Sciences at St Petersburg) at a very advanced age—that he also must have reigned a long time in Bactria Another coin of Eucratides similar to the one engraved here is preserved in the British Museum Mr Payne Knight calls it Eucratides II the head is younger looking than the coin engraved below it possesses however the same character of execution The monogram differs being

The figure of Hercules on the reverse of this coin of Demetrius appears to have been designed to commemorate his conquests in India (From Meyendorff s *Travels*)

The coin of Demetrius should be classed amongst Indo Grecian rather than Greek Bactrian coins, still it is so intimately connected with the Greek Bactrian dynasty and the history of Bactria it may with propriety be admitted in this place The Greek Bactrian coins found at different times, are of gold silver and copper The specimens in the British Museum are very perfect The silver coin of Demetrius, as far as we can judge from the drawing in Meyendorff, is finer than all the known Greek Bactrian coins A gold coin of Euthydemus is described in Mionnet s *Description des Médailles Antiques*

Colonel Tod s medal of Apollodotus has the inscription ΒΑΣΙΛΕΩΣ ΣΩΤΗΡΟΣ ΑΠΟΛΛΟΔΟΤΟΥ round a naked figure with an arrow in his hand The monogram is The Zend characters on the reverse surround a tripod with two other Zend characters probably monograms The coin of Menander has an armed head on one side, with the inscription ΒΑΣΙΛΕΩΣ ΝΙΚ . ΝΑΝΔΡΟΥ, on the reverse, a winged figure with a palm-branch, with an inscription in the Zend character, and the monogram .

Colonel Tod gives also coins of the character of the Kanishka coin mentioned above his coins are well worth the attention of the curious on these subjects

To the following list of Bactrian kings by Schlegel, we have added a notice of such coins as we are acquainted with —

B C 255 Theodotus I
243 Theodotus II
220. Euthydemus of Magnesia, Coin of, in the British Museum, and one of silver given in Lieutenant Burnes s *Travels*.
195. Apollodotus Soter —Alluded to by Plutarch, Trogus, and Arrian.
Menander Nikator.

Coins of these kings found by Colonel Tod at Surapura on the Jumna, and one of Menander, by Lieutenant Burnes, at Khoju Oban.

Heliocles Dikaios.—On the authority of Visconti and Mionnet from a single medal. A coin of Heliocles is preserved in the British Museum.

Demetrius, son of Euthydemus: doubtful if he reigned in Bactria.

Coin of Demetrius, given in Meyendorff's *Travels*.

B.C. 181. Eucratides I.—A fine coin of this monarch is preserved in the British Museum. There is also in the British Museum a very perfect small coin of Eucratides, weighing 12 grains: on the reverse are two caps and two palm-branches.

146. Eucratides II.—Murdered his father, and was himself afterwards slain.

125. Destruction of the empire by the Scythians or Sacæ.



Euthydémus. (Weight 187 grains.)



Héliocles Dikáios. (Weight 251 grains.)



Demétrius.



Eucrátides I.* (Weight 257 grains.)

BA'CTRIS, a genus of palms, consisting of a considerable number of species found about rivers, and in marshy places in America, within the tropics, especially near the line. Their trunk is usually of moderate height, or even dwarfish, never exceeding twenty feet; sometimes having the stout tree-like aspect of palms in general, but often being more similar to reeds. They often grow in dense patches, forming impassable thickets, on account of the numerous, long, hard, black spines with which the stem is protected. Their wood is generally hard and black towards the outside, but pale yellow internally, with black fibres. The leaves usually grow all over the surface of the stem, instead of being confined to the summit only; they have extremely spiny stalks, and are either pinnated after the manner of the date-palm, or merely consist of two broad, sharp, diverging, plaited lobes. The fruit is small, soft, with a subacid rather fibrous pulp, inclosed in a bluish-black rind, and affords a grateful fruit to small birds.

Bactris acanthocarpa, a species which grows twelve or fifteen feet high in the primæval woods about Bahia, forming patches thirty feet in circumference, and having elegant pinnated leaves six or eight feet long, with stout spines on their stalks, yields an extremely tough thread, from which the natives, who call it *tucum*, manufacture strong nets. Its drupes are of a kind of vermilion red, bristling with short black prickles.



Martius mentions seventeen other species.

BACULI'TES (zoology), a genus of Lamarck's polythalamous or many-chambered cephalopods, belonging to the family of *Ammonites*, or, as they were formerly called, *Cornua Ammonis*, horns of Ammon, from the resemblance of the shell of the typical genus Ammonites to the ram's horn, said to be characteristic of Jupiter Ammon. *Baculites*, which was first discovered by Faujas de St. Fond in the limestone of Maestricht, is only known in a fossil state, and is comparatively abundant in the limestone of Valognes, in Normandy. The shell is straight, more or less compressed, conical, or rather tapering to a point, and very much elongated. The chambers are sinuous and pierced by a marginal siphon, and the last chamber is several inches in



[Baculites vertebralis.]

1, 2, Portions of baculites vertebralis; 3, a detached piece of the same.

* The fourth letter of the name of Eucratides, which on the original coin is an I, was evidently intended for a P, and has probably been damaged a little; compare the P on the coin of Demetrius.

length *Baculites vertebralis*, Montfort, affords a good example of the genus. [See CEPHALOPODA.]

BADAKHSHAN (by some written **BUDUKHSHAUN**) is the name of one of the numerous Khanats or principalities into which the country of Turkistan is divided. It is situated between 69°—73° E. long., and 36°—38° N. lat. It is bounded on the south and east by Kaferistan, which separates it from the country of the Afghans and Kashgar; on the west it borders on the territory of the independent Uzbeks of Kundûz and Hissar, and on the north on the dominion of the Kirgizes of Pamere, and of the Tâjiks of Shughnân, Derwâz, and Wakhîla. The country is exceedingly mountainous and filled with highlands connected in the east with the Belur or Belut-Tagh, and in the south with the high range of the Hindu Kush. It is intersected by two principal valleys formed by two rivers which unite to make the Amu or Oxus. The first, which is the larger of the two, is the Penj, called also the Hammû (whence probably the name of Amu). It rises in the high grounds east of the Belut Tagh range, issuing from under the snow of the lofty mountains of Pûshtekhar, and working its way by the lower grounds of Shughnân and Derwâz. The second is called the Kokcha or Badakhshân river: it rises towards the south of the first, in that part of the Belut Tagh which separates Badakhshân from the Chitrâl territory. It is seldom fordable so low as Feizâbâd, and there are several wooden bridges across it. The two rivers are separated by a range of lofty hills: they meet near a place called Kela Burat Beg. Numerous other valleys of less extent exist among the mountains, and are fertilized by streams which pour their waters into the two larger rivers.

The climate of Badakhshân is healthy, and travellers praise the beauty of its scenery. The valleys and small plains are described as fertile. The part of Belut Tagh within Badakhshân produces iron, salt, sulphur, and lapis lazuli. The mode in which the last is detached from the cliffs is the same that is practised for getting large masses of stone from the quarry in some parts of Hindustan: a fire is lit over the block of lapis lazuli, and when the stone becomes sufficiently heated, cold water is dashed upon it, and the rock is thus fractured. (Burnes's *Travels into Bokhara*, vol. ii. p. 205.)

The celebrated ruby mines of Badakhshân, often alluded to by Persian poets, are situated at a place called Ghuan near Shughnân, on the verge of the Oxus. They are at present worked by the command of the chief of Kundûz, who has conquered this part of the country. The rubies are said to be found like round pieces of pebble or flint, and imbedded in limestone.

The inhabitants of Badakhshân are Tâjiks: their language is Persian, and they are Mohammedans of the Shiah sect. Neither the Uzbeks nor any of the Turki families have settled in the country, but towards the west there are many camps of wandering Uzbeks. The capital is Feizâbâd, a considerable town situated on the Kokcha river, but now almost without inhabitants in consequence of an invasion of the chief of Kundûz, which happened about the year 1822. It also suffered much from an earthquake in January, 1832, which was likewise felt at Multan and Lahore, but which appears to have been most violent in the valley of the Oxus. There is, according to Fraser, another town, also of considerable importance, and of the same name as the province: some writers seem to identify this town of Badakhshân with Feizâbâd.

The chief of Badakhshân, at the time of Mr. Elphinstone's embassy to Kabul, was Sultan Mohammed, who was then supposed to be an independent sovereign. His revenue was estimated at six laks of rupees (about 60,000*l.*), and his force from 7000 to 10,000 men, mostly matchlock men, a service in which the natives of Badakhshân greatly excel. The name of the present chief is Mirza Abd al Gûfûr, son of Mohammed.

(See Leyden and Erskine's *Memoirs of Baber*, Introd., p. xxix. xxx.; Elphinstone's *Account of the Kingdom of Caubul*, vol. ii. p. 441, 442, 2d edit.; Burnes's *Travels into Bokhara, &c.*, vol. ii. p. 202, &c., and map; Fraser's *Travels in Khorasan*, Appendix, p. 105.)

BADAGRY is a town on that part of the coast of Guinea which is commonly called the Slave Coast, about 6° N. lat., and 3° 30′ E. long. It is six or seven miles from the shore, on the banks of what is called the Western River of the Lagos: this river, according to Bowdich, runs from the river Lagos, whose mouth is about 4° 30′ E. long., towards the west to the river Volta, which approaches the meridian of Greenwich: it there joins the Volta near its mouth. [See LAGOS.] A natural canal unites this western river with the sea at Badagry. The town may contain upwards of 10,000 inhabitants, who formerly dealt in slaves to a great extent, for which reason the Portuguese established at this place five factories, and resorted to it annually with many vessels; indeed it is probable that this trade has not yet ceased. The houses, except that of the king, are constructed of bamboo cane, and are only of one story. The market is well supplied with poultry, yams, maize, palm wine, country cloth, &c. The king of Badagry is not an independent sovereign, but subject to the king of Eyeo or Katunga, who resides at a great distance from the coast. How far the authority of the king of Badagry extends over the level and often swampy, but in many parts fertile coast, is not known. Captain Clapperton and Richard Lander set out from Badagry on their expeditions into the interior of Africa. (Bowdich, Lander.)

BADAJO'Z (*Pax Augusta*), a city in Spain, the capital of Estremadura. It was called by the Moors Beled-Aix, or the land of health, from which its present name is derived. It is situated in a vast plain, at the confluence of the river Guadiana with the Rivillas, and is 270 feet above the level of the former river: 38° 52′ N. lat., 6° 12′ W. long. Badajoz is a fortified place, opposite to Elvas in Portugal, from which it is distant about twelve miles. The town contains 12,688 inhabitants, a cathedral, the chapter of which consists of a bishop, twenty-three canons, and a number of chaplains, five convents of monks, and eight of nuns. The whole bishopric contains fifty-three parishes. There are no fountains in the town, but a great number of wells and cisterns. The streets are regular and clean, but very narrow. Badajoz has given birth to many eminent characters both in science and arts, among whom we may mention the celebrated painter Morales, some of whose works are preserved in the cathedral. The soil of the surrounding country is very fertile, and produces abundantly grain, fruit, wine, oil, and grass. The industry of the inhabitants is confined to the tanning of leather, the manufacturing of soap, and the weaving of coarse woollen stuffs in the hospicio or almshouse.

The castle, or tower, which is built on a calcareous rock, 300 feet above the level of the Guadiana, and on the south side of it, commands both the town and the confluence of the two rivers. The city spreads like a fan between the two rivers, and is protected by eight good bastions, from twenty-three to thirty feet in height, with a counterscarp and glacis. On the north-west side of the place is a bridge upon the Guadiana, 1874 feet in length, and 23 wide. It has twenty-eight arches, and is protected by a good bridge-head (*tête du pont*). There are, besides the gate of the bridge, four other entrances to the town. The outworks consist of the ravelin of San Roque on the eastern side, which covers a dam and sluice upon the Rivillas; Fort Picurina, on the south-east; Fort Pardaleras, a crown work occupying the southern side of the town, from which it is separated 600 feet; and on the opposite side of the Guadiana, Fort San Christoval, which is 600 feet square, stands upon a rock overlooking the interior of the town, and is connected with the bridge-head.

Badajoz was possessed by the Moors until 1168, when Alonso Enriquez, the first king of Portugal, wrested it from them. Fernando II., king of Leon, who fled for protection to his ally the Moorish king of Badajoz, rescued the place from the hands of the Portuguese, and made Alonso a prisoner, but generously granted him his liberty, and reinstated his ally in possession of the town. In 1181 Fernando himself took it from the Moors, but he lost it through the perfidy of the Moorish alcaide, in whose hands he left it. In 1227 it was again taken from the Moors by Alonso IX. of Castile. In 1666 it was besieged by the Portuguese, who retired after a few days.

As soon as the news of the rising of the people at Madrid, in May, 1808, against the French, reached Badajoz, war was declared against France, a junta was formed for the defence of the province, and a messenger sent to General Carraffa, who commanded a Spanish division in Portugal, to invite him to come to the defence of the country. The soldiers then at Lisbon dispersed themselves, and passing the frontiers went to form part of the garrison of Badajoz. General Kellerman sent three successive messages to the junta of Badajoz, exhorting them to submit to

Napoleon, and endeavoured to excite the animosity of the Portuguese against their neighbours, but the Portuguese, making common cause with the Spaniards, sought a refuge in Badajoz, and by that means the garrison of that place was so increased, that Kellerman was obliged to maintain a strong force at Elvas. In April, 1809, Marshal Victor sent a summons to the junta, which was answered by proclaiming a crusade against him. In January, 1811, Soult laid siege to Badajoz. The governor of the place, Menacho, with about 20,000 men, defended it vigorously until the 2nd of March. On the night of that day, in a sally which he gallantly made against the besiegers, he was killed by a cannon shot. Imaz, who succeeded him in the command, cowardly surrendered the place on the 10th, and 15,000 men, who then formed the garrison, became prisoners of war. In the course of that year two attempts were made by the allied English and Portuguese army to storm the place, but both failed.

After the fall of Ciudad Rodrigo, in March, 1812, Lord Wellington threw his army with the greatest secrecy over the Tagus, with a view of investing Badajoz before Soult and Marmont should be able to relieve it. The better to deceive his enemies, he ordered the artillery for the siege to be embarked at Lisbon on a feigned destination; when at sea it was re-shipped into small craft, and conveyed up the Sado to Alcaçar do Sal, and from thence in carriages to Badajoz. On the 11th the British army reached Elvas, on the 16th they crossed the Guadiana over a flying bridge and the place was suddenly invested by the fifth and light divisions, commanded by Marshal Beresford and General Picton; the first, sixth, and seventh divisions, under General Graham, advanced to Los Santos, Zafra, and Llerena. Sir Rowland Hill, with the second division and General Hamilton, with the Portuguese corps and one brigade of cavalry, moved to Almendralejo, thus threatening the French General Drouet in front and flank and forcing him to retreat from Villafranca to Hornachos. The remaining part of the force invested the place. At the beginning of the siege the weather was particularly favourable, and the works went on with rapidity; but on the 17th a sudden change took place in the afternoon and during the whole of the night the rain fell in torrents, notwithstanding which, during the obscurity of the night, ground was broken within 180 feet of Fort Picurina undiscovered by the enemy. On the 25th fire was opened on Fort Picurina, and Lord Wellington determined that it should be taken by assault; the fortress was carried after a short but violent contest, in which all the chief British officers were either killed or wounded. Of the enemy, out of 250 men, 83 escaped, 86 were made prisoners, and the remainder were either killed or drowned in attempting to cross the Rivillas.

The possession of the Picurina enabled the besiegers to establish the second parallel with little loss, and on the 26th two breaching batteries opened fire within 900 feet of the body of the place. At this time news arrived that Soult was advancing from the south to relieve the place, and had obliged General Graham to retreat towards Albuera, while Marmont, crossing the frontiers into Portugal, had marched, laying waste the country, as far as Covilhao, in the Serra de Estrella. The allied cavalry, which had been left there to observe his movements, had crossed the Tagus, and were retreating. It was then deemed necessary to push on the siege with greater vigour. On the 6th of April two large breaches having become practicable in the bastions Trinidad and Santa Maria, orders were given for a general assault.

At ten o'clock at night the fourth and light divisions began the assault. As soon as they reached the glacis they were discovered by the enemy, who instantly opened a deadly fire. In spite of this fire, and of a heavy cannonade from the town, the troops continued their march, and entered the covered way. The ladders were fixed down the counterscarp, and the men quickly descended into the ditch. They then advanced to the breaches, and succeeded in gaining the ascent, but the obstacles which the enemy had placed there were found to be insurmountable. The summits of the breaches were crowned with *chevaux de-frise*, beyond them deep and wide trenches covered with iron spikes had been made, and all the surrounding buildings were casemated and occupied by the enemy's *tirailleurs*. After repeated efforts, the assailants were compelled to retire. In the mean time the third division, under General Picton, advanced to escalade the castle. The ladders were placed against the wall, but unfortunately they were too short. This obstacle was overcome by the men pushing one another forwards upon the rampart. The enemy poured down on them showers of hand grenades, heavy stones, and burning rafters of wood: the slaughter was immense. The officer in command being severely wounded, Colonel Campbell led the troops, and after a short struggle succeeded in taking possession of the castle. General Walker, with his division, entered the town by escalade. In the assault this officer was severely wounded. At daybreak Lord Wellington, upon receiving the news of the success of these corps, ordered the fourth and light divisions again to advance to the breaches, and the British, being already in the town, all resistance on the part of the enemy soon ceased. General Philipon, with his staff and about 100 men, escaped to fort San Christoval, but shortly afterwards surrendered, and the whole garrison, consisting of about 4000 men, became prisoners of war. A considerable quantity of arms, ammunition, and other stores, were found in the place. The number of killed and wounded on the side of the British was nearly 5000.

Unhappily the lustre of this brilliant action was tarnished by the desperate and wild rage of the soldiers against the unarmed inhabitants of the town. All the efforts of the officers who at the risk of their own lives, endeavoured to check their excesses, were useless. 'Shameless rapacity,' says Colonel Napier, 'brutal intemperance, savage lust, cruelty and murder, shrieks and piteous lamentations lasted for two days and nights, and the tumult rather subsided than was quelled.'

(See Colonel Napier's *History of the Peninsular War*, vol. iv. book xvi.; Colonel Jones's *History of the Sieges in the Peninsula*.)

BADEN. The origin of this grand duchy, whose political existence is not of earlier date than the year 1805, may be referred to the German margraviate of Baden-Baden; and that margraviate, as well as the title of the family claiming to be its sovereigns, is derived from the ancient site of the baths of the same name, the 'Civitas Aurelia Aquensis' of the Romans.

Boundaries.—It forms a compact territory extending, with very irregular breadth, along the right bank of the Rhine in its upper course from south to north, and is situated between 47° and 50° N. lat., and 7° and 10° E. long. Its superficies is about one twentieth part less than that of Yorkshire, but it exceeds Yorkshire about two per cent. in number of inhabitants: it is more than equal to Saxony in extent, but much below that kingdom in point of population. The length of the Baden dominions in a straight line from north to south, namely, from the village of Lautenbach, south-east of Heppenheim, in the grand-duchy of Hesse, to the Swiss frontier immediately south of Creuznach, is about 150 miles, but if estimated by the curved line drawn from the last-mentioned point in a north-easterly direction to the extreme northern point below Homburg, it is not short of 190. The greatest breadth of Baden is about 100 miles, between Rheinweiler and the frontier-line east of Marksdorf, and the least about 14, between Fflezheim on the banks of the Rhine, and Moosbronn, which lies close upon the borders of Wurtemberg, both places being nearly equidistant from Kuppenheim on the Murg. Its southern limits on the side of Switzerland are formed by the 'Untern' or 'Zeller-See,' a western arm of the Boden-See (Lake of Constanz), and the right bank of the Upper Rhine, from its leaving the Boden-See until it reaches the canton of Basle, excepting for two short distances where the territory of Schaffhausen intervenes. Basle, in the south-western extremity of Baden, makes a small indenture in its territory, which disconnects it a third time from the course of the Rhine; but this river having here exchanged its westerly for a general northerly course, once more skirts the grand-duchy, and from the point opposite to Huningen until it quits it about seven miles north of Mannheim, forms the line of demarcation between the whole western side of Baden, France, and Rhenish Bavaria. In the north-west, the possessions of grand ducal Hesse bound the Baden dominions, and Bavaria becomes its north-eastern boundary as far as the point where the frontiers of Baden, Bavaria, and Wurtemberg meet. In the east, the grand-duchy is principally bordered by the territory of Wurtemberg; its south-eastern neighbour, for a short distance, is the principality of Hohenzollern-Sigmaringen. It is in the south only that the unity of the Baden dominions is disturbed by

the interposition of parts of the canton of Schaffhausen and the site of the Würtemberg fortress of Hohentwiel.

Area and Population.—The area of Baden has been variously estimated; for there is scarcely a state in Germany of which we possess fewer statistical details of an official character. Demian states it to be between 6048 and 6069 square miles; Hassel and Schnabel set it down at 5859; and the compilers of the *Topographical Military Atlas*, at 5759; but we prefer, in common with Eggler, and particularly Dittenberger, who was secretary to the Baden ministry, to adopt Tulla's *Revised Estimate of the Board of Engineers*, which does not make this area beyond 5712 square miles. Its political distribution, as re-constituted in the year 1832, is the following: 1. The Circle of the 'Lake,' 1029; of the 'Upper Rhine,' 1659; of the 'Central Rhine,' 1680; and of the 'Lower Rhine,' 1344. According to the enumeration made in 1832, the population of the several circles appears to have been as follows:—Circle of the Lake, 168,111; of the Upper Rhine, 315,523; the Central Rhine, 393,237; and the Lower Rhine, 298,438; total, 1,175,309, distributed among 227,815 families, so that the average number of individuals to each family was about 5. The males amounted to 573,508, and the females to 601,801, which shows an excess of 28,293 in favour of the latter. As Wörl states the increase between the years 1819 and 1830 to have been 168,805, and as no check upon a continued increase has since occurred, we feel justified in assuming that proportion of increase to have marked the years 1833 and 1834, and therefore, in estimating the present population of Baden at 1,206,000 souls.

Character of the Soil.—The larger part of this state is of a mountainous or hilly character; it is interspersed with fertile and pleasant valleys, but contains no considerable plain, except the almost uninterrupted rich and beautiful level, which, lying on the right bank of the Rhine, and in its sweep northward, between that river and the Black Forest, has the Boden-See for its southern and the Main for its northern extremities. The general face of the country has a uniform descent from east to west towards the Rhine, into which there is scarcely a river in the Baden territory which does not discharge its waters. The soil is generally productive; but more particularly in the 'Valley of the Rhine,' and the land adjacent to the Neckar; even the sandy region about the capital (Carlsruhe) has been worked into fertility by persevering cultivation; and there are few tracts, in the more elevated districts, where the luxuriant growth of timber is impeded by climate or positive barrenness. The following return of the extent of land which has been brought under cultivation, or rendered otherwise productive, will place the preceding remarks in a yet more striking point of view. It is derived from Hörschelmann's edition of Stein's *Manual*, which assigns the date of the 29th of February, 1832, to it.

Cultivated, or otherwise productive Lands.	Morgens.		Acres.
Arable land	1,363,167	or	1,409,514
Woods and forests	1,296,071	-	1,340,137
Meadow land	406,613	-	420,437
Pastures	225,759	-	233,435
Occasionally cultivated	113,459	-	117,316
Vineyards	68,064	-	70,378
Gardens	37,507	-	38,782
Chestnut plantations	790	-	818
Quarries and chalk-pits	102	-	105
	3,511,532	or	3,630,922
Waste land	21,214	-	21,935
	3,532,746	or	3,652,857

Mountains and Forests.—Of this surface, as we have already remarked, the larger portion is of a mountainous or hilly character, which is mainly owing to the elevated range of the Schwarzwald Black Forest, which derives its name from the dark tint of its foliage. The high lands which compose it spread over the southern districts of Baden, almost to the banks of the Rhine, and rising nearly opposite to the northern declivities of the Jura, have been considered by many as a prolongation of the Jura range. The Black Forest, which forms a small part of the Hercynian Forest of the Romans, runs parallel to the Rhine from S.S.W. to N.N.E.; it forms a connected chain rather than a series of isolated groups, and in its course from the vale of the Wutach towards the left bank of the Neckar throws out its arms into the neighbouring districts, where its wild and wooded heights subside into slopes covered with vineyards and orchards, thickening in proportion as they approach the Rhine. Its heart is primitive granite and gneiss, with porphyry on its sides, and sandstone at its base and along its most elevated ridges. The principal chain contains silver, copper, lead, and cobalt: it abounds in pines and firs, oaks and beeches, and occupies 800,000 morgens, or about 1290 square miles, of which upwards of one-half belongs to Baden. The highest summits, the Feldberg, between Todtnau and Obergarten, the Belchen, at the extremity of the vale of Münster, and the Candel near Waldkirch, do not rise higher than 4386, 4356, and 3906 feet respectively. Its greatest length is estimated at 83 English miles, and its greatest breadth in the south at 37, and in the north at 18 miles. It is inhabited by about 300,000 individuals, who maintain themselves by rearing cattle and by mechanical occupations. The rivers which rise within it are the Danube, Neckar, Wutach, Schwarzach, Conder, Treisam, Kinzig, Murg, Enz, Nagold, Alb, &c. Most of them flow westward through picturesque valleys, and discharge their waters into the Rhine. In one of these valleys are situated the celebrated baths of Baden-Baden. Its most northerly continuation spreads out into a spacious plateau, from 13 to 18 miles in width, which is occasionally diversified by eminences of some altitude, such as the Kaiserstuhl near Heidelberg, which rises to a height of 1752 feet.

Immediately opposite to the Black Forest, but on the northern or right bank of the Neckar, rises the Odenwald, a range of inferior elevation, which is sometimes considered as a prolongation of the Black Forest. It spreads through that portion of Baden which lies north of the Neckar, and takes a north-easterly bend towards the Tauber and Main; in the west it has an abrupt descent to the valley of the Rhine. In the latter direction it is composed of granite and gneiss, overlaid with sandstone, but its eastern masses are wholly of sandstone-formation and of much gentler declivity. It is not nearly so wild and inhospitable as the Black Forest; it is densely covered with oaks, beeches, and pines, and intersected with small valleys watered by inconsiderable streams; and its sides and base, as well as these valleys, are in general highly cultivated and thickly peopled. The most elevated points in the Odenwald are the Katzenbuckel, near Eberbach, and the Walzknopf, north of Weinheim; the first is 1878 and the latter 1752 feet above the level of the sea. The south-westernmost point of this range is the Heiligenberg, in the vicinity of Heidelberg, which is 1148 feet in height.

The Kaiserstuhl, or Emperor's Seat, a volcanic mass, nearly ten miles in length and five miles in breadth, which lies between the Rhine and Treisam, and is wholly isolated from the Black Forest, may be looked upon as an independent group; its highest summit is the Todtenkopf, or Dead-Head, at an elevation of 1760 feet: the finest vineyards in the grand-duchy lie around it.

Rivers and Lakes.—Baden contains three springs, which are the source of the second in rank of European rivers. The most considerable of these springs are the Brig or Brigach, which flows from Mount Kesselberg in the Schwarzwald, near St. Georgen, in the south-eastern part of the grand-duchy, and passes through Billingen; and the Brege, which rises at the foot of Mount Rossack, above Furtwangen, and flows nearly in a parallel line until it meets the former, and immediately afterwards unites with the third and smallest stream, in the court-yard of Prince Fürstenberg's residence at Donaueschingen, from which spot the united waters assume the name of the Danube. Hence it takes a north-easterly direction, quits the Baden territory soon after to the west of Möhringen, whence it flows through the south extremity of the west of Würtemberg, and once more entering Baden beyond Frielingen, passes into Hohenzollern to the west of Sigmaringen. The most important stream in the grand-duchy is the Rhine, which enters it west of Stein, in the canton of Schaffhausen, forms its southern boundary, excepting where that boundary is twice, though but for a short distance, broken by the intervention of that canton; and after it has quitted the territory of Basle, where it turns to the north, it skirts the western districts of Baden until it enters the grand-duchy of Hesse immediately north of Mannheim. Its fall, between that town and the point where it issues from the Boden-See, is 916 feet; between Schaffhausen and Basle

its breadth widens from about 340 to 750 feet, and at Mannheim it widens to 1200. The six flying bridges which cross it afford to Baden a means of communication with France and Switzerland, namely, in the west, at Kehl and Mannheim, and in the south, at Kaiserstuhl, Laufenburg, Seckingen, and Rheinfelden. Its winding course is intersected by numerous islands, abounding in wood and game; its waters are rich in fish, and its bed affords gold-dust and crystal, in small quantities, it is true, but the search after the gold employs a considerable number of people, is prosecuted at thirty different spots, and produces from a thousand to fifteen hundred pounds sterling a year. In former times the coin which was struck from it bore for its motto 'Sic fulgent litora Rheni.' The principal tributaries of the Rhine on the Baden side are the Neckar, which is navigable before it reaches Heinsheim, where it enters the grand-duchy from Würtemberg; it then winds first to the north and then to the south as far as Neckar-Gemünd; and thence flows, north-westwards, through the narrow lowland between the Black Forest and Odenwald, and passing Heidelberg, falls into the Rhine at Mannheim. The Main, another navigable stream, forms the partial boundary of the northern districts of Baden, and before quitting its territory receives the Tauber above Wertheim, after the latter has traversed the north-eastern part of the circle of the Upper Rhine. The Kinzig rises on the Würtemberg side of the Black Forest, runs from south-east to north-west through Hansach, Gengenbach, and Offenburg, in the circle of the Middle Rhine, and discharges itself into the Rhine at Kehl. The Murg, a smaller river, though not of inferior utility for the transport of timber, enters from Würtemberg at Forbach, runs northwards and then north-westwards, through the delightful vale which bears its name, to Rastadt, near which town it receives the Oos, and falls into the Rhine at Steinmauern north of Rastadt. The Wutach rushes south-eastwards through the wild regions of the Black Forest, joins the Schlücht below Thiengen, and enters the Rhine south of that town. The Elz rises in the higher regions of the Black Forest, at no great distance from Schonach, in the northern part of the circle of the Lower Rhine, runs in a winding and rapid course past Waldkirch, Emmendingen, and Reuzingen, is joined by the Dreisam (or Treisam) at Riegel, and flows into the Rhine through several arms in the neighbourhood of Niederhausen and Kuppel.

The largest lake within the grand-duchy is composed of that portion of the Lake of Constanz which is the entire property of Baden, consisting of the Zeller, or Unter See, about nine miles long and four and a half broad, in which the picturesque island of Reichenau is situated; and the Ueberlinger See, an arm of the Lake of Constanz, which stretches into the south-eastern part of the circle of the lake, and is enlivened by the beautiful islet of Mainau. These waters are full of fish, but of no great importance in a commercial point of view, though they facilitate the intercourse between the districts around them. The principal traffic on the Baden side is carried on by the ports of Constanz, Sernatingen, Ueberlingen, and Meersburg. Among the other lakes in the grand-duchy are the Möckinger See, near Lake Constanz, a small but deep sheet of water, in which sturgeons (here called 'weller') of one hundred pounds weight are caught; the Illmen See, south of Pfullendorf, noted for the abundance of its fish; and within the regions of the Black Forest, the Schlücht See, near the spot of that name; the Feld See, 2287 feet above the sea, which is united by the Gutach with the Titti See; the Eichner See, in the neighbourhood of Schopfheim, at an elevation of 1467 feet, whose waters suddenly disappear and as suddenly return, forming at one time a lake, and at others being converted into arable or grazing land; and the Nonnmattweiher, or Nonnmatter, See, at an elevation of 3000 feet, encircled by a rocky, wood-crowned amphitheatre, which rises 900 feet above it, and celebrated, not as the credulous people of those parts would have the Mummel See, or Lacus Mirabilis, to be, as the residence of mermaids, but for its floating island of turf, from six to twelve feet in thickness, which rises and falls with every rise and fall of its surface.

Climate.—The climate throughout the levels and valleys, which are bounded by the Rhine, and lie deep embosomed by the mountains, is mild and conducive to health; but in the elevated regions of the Black Forest and Odenwald it is exceedingly raw and inclement. Here, indeed, where spring, summer, and autumn are crowded into the space of three months, the transition from the winter to the open season is so abrupt, that it is not uncommon to pass from frost and snow at once into the heat of summer, and from this into the depth of winter. The exposed parts of the Black Forest can scarcely be brought to produce oats or potatoes, nor does the cherry ripen before the month of September. Yet the atmosphere of Baden is everywhere characterized by salubrity, a fact which is proved by the vigour of frame and longevity to which its inhabitants attain.

Natural Productions.—It is no exaggeration to say, as it has been observed of Baden by one who was not a native, that it is pre-eminently the 'Eden of Germany.' Though 'one third of its surface is covered by the Black Forest, and no inconsiderable extent by the Odenwald, it possesses a soil favourable to the growth of grain, wine, and fruit, and is full of noble forests and navigable streams. The major part of it belongs to the valley of the Rhine. At one extremity lies the majestic expanse of the Lake of Constanz, and at the other the rich lowlands of the Neckar: here the gentle plains of the Kinzig and Elz, there the less frequented and less known vales of the Murtach and Alps, and beyond all these the picturesque valley of the Murg, the Arcadia of Baden.' Agriculture is the chief occupation of its inhabitants, and yields a surplus of produce for which Switzerland and France afford a ready market. Even in 1809, since which time the grand-duchy has obtained an accession of 160,000 acres, the surface under the plough amounted to 1,355,000 acres, or thirteen thirty-fifth parts of its whole extent; and it has increased in the present day to upwards of 1,400,000. It would be difficult, indeed, to instance any other country where the waste lands constitute so small a portion of the whole soil as less than six acres in every thousand. The meadow lands and pastures form more than a sixth part of the area of the Baden dominions. The capital, represented by the property liable to land-tax and other public dues, is valued at 448,220,515 florins, and adding to this the lands belonging to the clergy and local schools, which is estimated at 16,848,730 florins, the value of the entire property liable to land-tax represents a capital of 465,069,245 florins, or about 44,810,000*l.* sterling; independently of other lands, which are exempt from the payment of the land-tax, but of which the value is uncertain. It appears that Baden annually raises about 1,358,000 quarters of all descriptions of grain, and exports between 75,000 and 93,000; it yields, also, hay and other fodder for horses and cattle in superabundance. The upper and lower districts produce rapeseed, hemp, of which Theningen is reputed to grow the finest in Germany, flax, and opium; and the lower districts in particular, which include the former Palatinate of the Rhine, where the best husbandry obtains, considerable quantities of tobacco and hops. Potatoes are a favourite article of cultivation in the mountain-districts, though otherwise raised in every quarter; and besides the ordinary kinds of fruits, which are extensively raised, and of all varieties, filberts and chestnuts are most abundant. Cider and perry are made in most provinces; and the average produce of the vine, which is chiefly cultivated on the high lands skirting the valleys of the Rhine and Main and Lake Constanz, has been estimated, from the returns of the years 1826, 1827, and 1828, at 228,415 aulms, or about 4,079,000 gallons, per annum. The favourite qualities of the Baden wines are the Durbacher and others, which are grown in the district of Ortenau, the Margraviates (Markgräfler), from the vicinity of Mühlheim and Lörrach, and the Wertheimer, from the banks of the Main.

Timber abounds, but more particularly in the Black Forest and the central and upper parts of Baden. The varieties consist principally of the fir, pine, oak, beech, birch, alder, aspen, and ash. Kettner estimates their annual produce at 1,172,286 Baden cords. About one-half of the 1,340,662 acres of woods and forests are communal or parochial property, about 279,000 belong to the state, 282,900 to private individuals, 166,450 to petty princes and other seignorial proprietors, and 31,900 to the church.

Animals.—Horned cattle are bred chiefly in the Breisgau, the Baar (about Donaueschingen, Fürstenberg, Blomberg, &c.), and the parts adjacent to Lake Constanz. Their numbers are computed at between 420,000 and 450,000. The breeding of sheep has much increased of late years; the flocks have been greatly improved by the grand-ducal establishment, which has introduced the crossing of the native with the Merino breed; and the whole stock may

now be estimated at 180,000 heads. The race of horses is said to be deficient both in quality and quantity, but pains are taking to improve the breed, their number does not exceed 75,000 Goats are reared in every part, to the number of about 23,000, and the swine amount to 310,000 or 320,000. In several quarters honey and wax are obtained, and in all, poultry and domestic animals are found in abundance. The wild boar, stag, roe, fallow-deer, fox, badger, marten, otter, and wolf (the latter being seen occasionally in the islands of the Rhine), the vulture, eagle, falcon hawk kite, and owl, are the principal wild animals Most of the lakes and rivers, the Neckar being a peculiar exception, are rich in fish, trout, sometimes fifty pounds weight, are caught in Lake Constanz, and carp, weighing at times forty pounds, in the Rhine Lake Constanz, as well as Lake Mockinger, and the Danube, produce the sturgeon

Metals and Minerals—Among the mineral productions we may enumerate the garnet, crystal, jasper chalcedony and onyx, marble, alabaster, gypsum chalk, porcelain earth, and potter s clay Silver, copper, and lead are found along the valley of the Kinzig and Munster, and in the neighbourhood of Kork and Pforzheim silver to the amount of about 8500 ounces annually copper to about 900 cwt and lead of fine quality, between 80 and 100 tons in some years and in others not more than 10 From 2000 to 2500 tons of iron are annually obtained from the mines at Stockach, Kandern the Black Forest, Hausenstein, &c Inconsiderable quantities of cobalt manganese, zinc sulphur, coals alum, vitriol and bismuth are likewise raised Salt until of late years was not a native product but it is now obtained in such abundant quantities from the government saltworks at Durrheim in the higher regions of the Black Forest, and at Rappenau, near Mosbach as to admit of the exportation of 50 000 out of 278 500 cwt annually produced

The grand duchy is rich in mineral waters the warm springs of Baden Baden at the north western foot of the Black Forest, impregnated with sulphur salt and alum, have acquired great celebrity a spring of nearly the same quality exists in Badenweiler acidulous waters are found at Griesbach, Antogast Petersthal and Rippelstau and sulphur springs and baths at Salzbach, Langenbrucken and other places,

Territorial Subdivision, &c —We have assigned our reasons in a former page for estimating the actual number of inhabitants at 1 200,000, the proportion of males to female being as 100 to 104$\frac{1}{10}$ But this proportion varies according to Malchus, in the several circles, for in the circle of the Lake the excess of females is 6$\frac{1}{3}$ per cent and in that of the Lower Rhine it is $\frac{1}{4}$ whilst in the circles of the Central and Upper Rhine it declines to 4$\frac{1}{3}$ and 3$\frac{1}{2}$ per cent respectively Professor Rau has also stated that, on an average of nine years there is one marriage annually in every 146 souls, one death in every 39 (which diminished to one in every 41$\frac{1}{3}$ in 1827, and that in this year the proportion of births to deaths was as 3 to 2) The inhabitants, according to Von Buchler and Demian, are thus located, viz —

Square Miles		In Towns	Market Places	Villages
1029	In the 'Circle of the Lake comprising Constanz the chief town 5600 inhabitants, and 13 Districts (Aemter)	24	2	[illegible]
1659	In the Circle of the Upper Rhine ' chief town Freiburg 14 300 with 18 Districts	29	7	550
1680	In the Circle of the Central Rhine chief town and the capital of the Grand Duchy Carlsruhe 20 100 inhabitants with 21 Districts	29	17	[illegible]
1344.	In the Circle of the Lower Rhine chief town Mannheim, 20 900 inhabitants, with 20 Districts	28	10	844
5712	Total	110	36	1668

To these details it may be added, that the whole number of houses in the grand-duchy amounted, in the year 1823, to 154,710; and their value, with offices and other appurtenances, as estimated by the National Insurance Company, in 1832, when the number had increased to about 175,000, or, as Von Berstett, the Baden minister, stated in the legislature, between 170,000 and 180,000, was 172,523,950 florins, about 16,023,000*l* sterling.

Religion.—The inhabitants, with the exception of several families, descendants of French Huguenots, and about 18,000 Jews, are of pure German extraction They consisted in 1832 of 792,723 Roman Catholics, 362,461 Protestants of the Lutheran and Reformed-Lutheran persuasions, 1422 Mennonites and Herrnhuthers, and 18,703 Jews. For the purposes of ecclesiastical government, the country is divided into sixty-four Catholic and thirty Protestant deaneries. The head of the Catholic church of Baden is the archbishop of Freiburg, whose jurisdiction also extends over the principalities of Hohenzollern, and within whose metropolitan diocese, according to the settlement made in 1830 are included the bishoprics of Freiburg Mainz (Hesse Darmstadt), Fulda (Hesse Cassel), Rottenburg (Wurtemberg), and Limburg, which constitute the ecclesiastical province of the Upper Rhine No church affairs can be referred to any foreign tribunal for adjudication, none but individuals of German birth can be admitted into the hierarchy, nor can any rate or due be exacted by a foreign authority The diocese of Freiburg comprehends the whole grand-duchy: the diocesan s income is estimated at 14,720 florins, about 1420*l*, and the number of Catholic cures of souls in Baden amounts to 736 The few nunneries which are allowed to exist are subject to rigid regulation, and their attention is principally directed to female education The Protestant cures of souls are 392 Every individual, whatever his creed may be possesses equal civil rights provided his principles and conduct be not inimical to the allegiance which he owes to the sovereign, and the peace and well being of the community at large but the edict of the 14th of May, 1807, which established this liberal policy, excludes all but Catholics and Protestants who are Trinitarians from being employed in the public service Rau states the increase of the three leading communities between 1819 and 1827, to have been in the following proportions Jews, 13$\frac{3}{8}$ per cent Roman Catholics 12$\frac{1}{4}$ and Protestants, 12$\frac{3}{16}$

Education The diffusion of sound instruction has long been an object of concern with the Baden government With this view a seminary for the formation of Catholic teachers is established at Rastadt and another for Protestant teachers at Carlsruhe Besides national or elementary schools as well as Sunday schools and schools of industry for the lower classes in most towns and villages, where upwards of 500 teachers are employed and twenty-eight well conducted elementary schools for Hebrew children, there are numerous institutions of a superior class Such are the twelve Latin schools, the three Catholic establishments for educating masters at Tauberbischofsheim, Ettlingen and Baden and the four Protestant academies of the same description at Pforzheim, Durlach Lahr and Lorrach the four Catholic gymnasia at Bruchsal Offenburg, Freiburg and Donaueschingen the Protestant gymnasium at Wertheim, and that for youth of either persuasion at Heidelberg the four Lycei namely for Catholics at Rastadt and Constanz, for Protestants at Carlsruhe and for both communions at Mannheim and the two universities, of which that of Heidelberg founded in 1386 is more particularly designed for Protestants and that of Freiburg, founded in 1460 for Catholics There are polytechnic schools at Carlsruhe and Freiburg and establishments for the acquisition of mechanical science (or gewerbs schulen) in several towns a commercial academy at Mannheim, a theological seminary for Catholics at Freiburg, and another for Protestants at Carlsruhe, deaf and dumb institutions at Carlsruhe and Pforzheim, and an asylum for the blind at Bruchsal

The chief establishments for the superior education of females are those in the convents at Baden, Freiburg, Offenburg, and Rastadt under the special superintendence of the public authorities, there are others at Mannheim, Carlsruhe, and Heidelberg All affairs connected with national education, with the exception of such as relate to the two universities, fall under the cognizance of the Board of General Studies The principal libraries are those of Freiburg (above 100 000 volumes) Heidelberg (70,000), Carlsruhe (75,000), Mannheim (70,000), and Donaueschingen (30,000) Among the numerous institutions for the advancement of the arts and sciences are the excellent Botanic Garden, the Museum of Antiquities, Paintings, Coins. &c, the Society of Arts and Industry, and the Hebrew Society for the encouragement of Agriculture among the Jews, at Carlsruhe, the Galleries of Paintings, Natural History, Antiquities, &c at Mannheim, the grand-ducal Society of Natural History and Physics, and the Hospital at Heidelberg, and the societies for promoting the natural sciences, and for encouraging the study of history, statistics, and antiquities, at Freiburg

Manufactures.—The manufacturing industry of the grand-duchy does not rank high either for its extent, or for the

variety or superiority of its productions. Von Berstett, ten years ago, did not estimate the number of establishments, in which manufactures were carried on upon a larger or smaller scale, at more than 160 altogether; and no essential addition has, we believe, since been made to them. Pforzheim, Carlsruhe, and Mannheim are the chief places. The government possess eight iron-works: the most extensive is at Albbrugg, whence about 1000 tons are annually obtained; but the whole produce does not exceed 60,000*l.* per annum. There are private establishments, likewise, such as those at Bachzimmern and Falkensteig, in the principality of Fürstenberg; but the quantity which they bring to market is small. There is a manufactory of arms at St. Blasien, and others, as well of arms as of iron wire and utensils, copper ware, nails, &c. at Albbrugg, Schopfheim, Schonau near Heidelberg, Pforzheim, Freiburg, Mannheim, Carlsruhe, and in various other parts. Alum and vitriol are manufactured at Schriesheim, Gerspach, and Au; saltpetre at Schwarzwalda, and gunpowder at Pforzheim, Ettlingen, &c. The most extensive branch of the Baden manufactures is perhaps that of the middling and coarser descriptions of linen, which are carried on in the circles of Lahr, Endlingen, the Odenwald, &c., and in which about 10,000 hands are engaged. Next in importance are the woollen manufactories, established at Lahr, Pforzheim (where the finest descriptions are woven), Michelfeld, and Sinsheim near Heidelberg, which, with some minor ones, employ about 1200 hands. Cotton manufactures exist in most quarters, particularly at Gehrwihl, Nusswihl, Unteralpfen, St. Blasien, Pforzheim, Mannheim, and the parts adjacent to the Black Forest. Silks are made at Lahr, Kandern, Schwazbach, &c. There are twenty manufactories of clocks, watches, and jewellery at Pforzheim, the yearly returns of which average 60,000*l.* or 70,000*l.*, besides those at Carlsruhe and in other places; and the region of the Black Forest has been long celebrated, not only for the production of wooden ware, but of wooden and brass clocks, from which above 700 master-mechanics derive a livelihood. The paper-mills are thirty in number, the most extensive being those near Ettlingern and Niefern, where machinery is skilfully applied. Tobacco, potashes, whitelead, smalts, glass, and earthenware form leading items in the enumeration of the products of Baden industry. Ship-building is likewise carried on to some extent at Neckargemünd and Neuenheim, in the neighbourhood of Heidelberg.

The regulations adopted by the legislature in July, 1822, have imposed very severe restrictions on the exercise of mechanical skill; every branch is placed under the supervision of Councillors of Industry (gewerb-räthen), who are themselves subject to the control of the executive. The whole operative community is classified into apprentices, assistants, and masters, and no one is allowed to enter the last class except he is of-age, and can produce proof of his skill.

Trade.—The position of the country on the Rhine, Main, Neckar, and other streams, and the access which they give it to Switzerland, France, and Germany, have rendered Baden a country of extensive transit, and secured to it outlets for its own productions. The institution of free ports at Mannheim, Schröck on the Rhine above Carlsruhe, Ottenheim and Freistett on the same river, Ludwigshafen and Constanz on the lake of Constanz, and Heidelberg on the Neckar, has been dictated by sound policy. The imports of Baden, which, as well as its exports, exceed one million sterling each per annum, consist of French and other wines, colonial produce, drugs and dyes, iron, steel, cottons, silks, fine woollens, horses, cattle, &c., and its exports of timber, grain, meal, oil, skins and hides, wine, hemp, linen, tobacco, iron wares, jewellery, fish, &c.

Government.—The executive and judicial powers in Baden are vested in the grand duke, and the legislative shared by him with an upper and a lower chamber of representatives. The ducal prerogative is defined by certain enactments contained in the 'Constitutional Record,' or charter, of the 22nd August, 1818, which fixes the right of succession in the heirs male of the reigning family who are of the Protestant faith, and, in default of them, transfers it to the male descendants of the female line: the charter also establishes equality of civil rights, renders every public servant responsible for the due observance of its enactments, abolishes all exemptions from taxation, declares every male liable to the military conscription, and places the judicial tribunals on an independent footing; it secures full liberty of conscience and private worship, and a community of political rights to the professors of the Roman Catholic, Lutheran, and Reformed faiths. The legislature consists of an Upper Chamber, the members (standes-herrn) of which are, the princes of grand-ducal blood, viz., the two Margraves of Baden, the six heads of the seignorial families, viz., the princes of Fürstenberg, Salm-Krantheim, Löwenstein-Wertheim, Leiningen-Neudonau, and Leiningen-Billigheim, whose possessions lie either wholly or in part within the borders of the grand-duchy; the Catholic archbishop of Freiburg; a prelate of the Protestant church; sixteen representatives of the domainial nobility, provided they have an unincumbered estate of the value of 30,000*l.* at the least; one representative for each of the two Universities, and certain members chosen by the grand duke, without regard to birth or rank, but not exceeding eight. The Upper House, therefore, at its full complement, is composed of thirty-six members. The Lower House consists of sixty-four representatives of districts and towns, chosen for eight years, and elected by all male individuals without distinction, who are not representatives, or represented in the Upper House, who have attained their twenty-fifth year, are settled in some electoral district, or fill a public office. One-fourth of the members of the Lower House is renewed every second year, and the whole of them must be either of the Roman Catholic, Lutheran, or Reformed persuasion. Both houses join in the election of a permanent committee, which is composed of the president of the Upper House, three members of the Upper, and six of the Lower House. The right of proposing laws belongs exclusively to the grand duke. No tax can be levied without consent of the legislature, and the supplies are voted for two years consecutively. In case of a collision between the two houses, they form themselves into a single body, and the question is decided by the majority of votes. There are five ministries,- namely, for foreign affairs and the grand-ducal house, and for justice, home affairs, finance, and war: the holders of these appointments, in conjunction with the grand duke or premier minister, as president, the commander-in-chief, and the head of the staff, form what is called 'the ministry of state.' Every circle has its own provincial government, and the circles themselves are subdivided into superior districts, land districts, or districts (ober-aemter, land aemter, or aemter), each having its local functionaries, to whom are referred all affairs connected with the regular administration of justice, police, &c. The tribunal of first instance is the Hof-gericht or Aulic Council, of which there is one in each circle, and appeals from it go before the superior Aulic Council, which sits at Mannheim, and is the highest tribunal in the country.

Military Forces.—The grand-duchy of Baden is one of the thirty-eight states which compose the German Confederation; it holds the seventh rank in the list of confederates, standing between Wurtemberg and Electoral Hesse, and is entitled to an entire vote in the minor diet, and to three votes in the major. The contingent which Baden is bound to furnish for the army of the Confederation, and which forms the second division of the eighth corps, consists of 7751 infantry, 1429 cavalry, 720 artillery, and 100 pioneers; amounting altogether to 10,000 men. But the whole military force, under the existing scale, would be composed of 8586 infantry;—namely, 1 battalion of grenadier life-guards 882 strong; 4 regiments of infantry of 1713 each, in all 6852; and 1 battalion of light infantry of 852 men. The cavalry is composed of 3 regiments of dragoons (628 each) mustering 1884 men; the artillery, of a brigade of 670; and a corps of pioneers 226 strong; in all, 11,366. On its present reduced footing, however, the official reports state its composition to be 3603 infantry, 1059 cavalry, and 485 artillerymen and pioneers; amounting altogether to 5147 men, with 1196 horses.

Finance.—The budget laid before the legislature of the past year (1833) states the gross receipts for the year 1831-2 to have amounted to 10,916,971 guldens, or about 1,051,800*l.*, and the expenditure to have amounted to 10,524,130 guld., or about 1,014,040*l.* It also estimates the former for 1832-3, at 10,597,758 guld., or about 1,021,110*l.*, and the latter for the same year at 10,393,906 guld., or about 1,001,460*l.*; leaving a surplus for the two years of 595,993 guld., or about 57,400*l.* applicable to the redemption of the debt. This item is independent of the

amount of the accumulating fund (betriebs-fond). Distributed among a population of 1,225,000 souls, it would hence appear that, at the present moment, the average amount of revenue derived from each individual is 17*s.* 2½*d.* per head. With respect to the public debt, we find it officially stated to amount to 25,307,834 guld., or about 2,438,515*l.*, which sum, by making allowance for the active capital of the sinking fund, may be reduced to a net amount of 22,943,041 guld., or about 2,210,650*l.* A portion of the royalties,—namely, the produce of the salt-works, which averaged 920,733 guld., or about 88,820*l.*, for the years 1831 and 1832, is assigned for the gradual extinction of the debt, which it is redeeming at the rate of four per cent. per annum, independently of any other appropriations in aid of it. The financial resources of Baden are of three descriptions; direct, from a national impost of about 6*d.* on every 10*l.* of property assessed; indirect, from excise duties, customs, highway rates, &c.; and variable, from the produce of grand-ducal revenues, such as those derived from the salt-works, post-office, &c.

The house of Baden is one of the oldest families in Germany, and, according to its own showing, traces its descent from the antient Dukes of Alemannia, who flourished in the seventh and eighth centuries. Their great ancestor was undoubtedly Berthold, Count of Breisgau, a sovereign prince of the eleventh century, who built the castle of Zähringen, whence his posterity derive the name of Zähringers; this prince was the first duke in Swabia, and Hermann II., his grandson, was the first who assumed the title of Margrave of Baden. Their descendants gradually acquired considerable possessions in Swabia, Switzerland, and Burgundy, but they were from time to time much reduced by partitions among collateral branches, until Ernest, the second son of Christopher II., became founder of the line of Baden-Durlach in 1527, which acquired considerable celebrity from George Frederick, his son. The line of Baden-Baden becoming extinct in 1771, their scattered dominions, which lay between the Swiss frontier, the Rhine, and the Neckar, were united under one head, though even so late as the year 1801 they did not occupy a larger area than 1617 square miles, or contain more than 210,000 inhabitants. By the treaty of Luneville, Baden acquired an accession of 1260 square miles of territory, and 245,000 inhabitants; and a further and much more considerable accession under the treaty of Pressburg in 1805. Two years before this treaty, Charles Frederick, in whose person the two houses were united in 1771, exchanged the rank of margrave for that of an elector of the empire, in which character he forwarded Napoleon's views by joining the confederation of the Rhine. In 1806 he married Stephania, the adopted daughter of Napoleon, and again exchanged his title for the dignity of grand duke. At the settlement of Germany by the Congress of Vienna in 1814 and 1815, the very existence of Baden as an independent state hung upon a single breath. Bavaria was on the point of receiving an indemnity for its cessions to Austria by the transfer of the circles of the Main and Tauber, as well as of the palatinate of the Rhine to its dominions, and Austria was to have received the Breisgau, when the Emperor Alexander, the grand duke's son-in-law, stepped in, and pronounced the dominions of Baden to be 'one and indivisible.' The latest addition made to the grand-duchy is the Earldom of Hohen-Geroldsek, which was united to the duchy of 'Zu and von der Leyen' in the Ortenau, by exchange of territory with Bavaria, to which Austria ceded it in 1819. It is 52 square miles in extent, and contains about 4600 inhabitants.

Tulla's *Grand-Duchy of Baden*; Demian's *Geography and Statistics of Baden*; Dittenberger's *Geographical, Statistical and Topographical Description of Baden*; *Rau in 'Pölitz's Jahrbücher,'* 1830; Büchler's *Description of Baden according to its Circles*: *Proceedings of the Legislature of Baden*; Hassel's *Principalities and Republics of Germany*; Stein's *Manual* by Hörschelmann, &c.

BADEN (also called **BADEN-BADEN**). Among the towns possessed by the various tribes, who inhabited the western parts of the antient 'Decumates Agri,' to which modern Swabia generally corresponds, was the 'Civitas Aurelia aquensis;' a spot which was much frequented by Roman visiters in the days of Antoninus and Aurelius. It is situated in the centre of the grand-duchy of Baden, in 48° 46′ N. lat., and 8° 15′ E. long., about five miles from Rastadt, and eighteen south-west of Carlsruhe: it is built upon a hill which is crowned by the residence of the former Margraves; and it stands on the Os, or Oelbach, in a valley surrounded on all sides by heights covered with forests. The town is irregular and old-fashioned in its construction, and the walls were formerly protected by a ditch, which is now laid out in shady walks and grounds. It owes its prosperity chiefly to the numerous visiters, who often treble the ordinary population, and its celebrity to seventeen warm springs impregnated with salt, alum, and sulphur, which flow down from the hill on which the castle stands, and rise from a spot, to which the name of 'Hell' has been given: the temperature of these springs varies, according to Stein, from 37° to 54° of Reaumur (115° to 153° Fahrenheit), and their discharge is said to be above 11,420,000 gallons per annum. Even when other water is foul, that which flows from these hot springs is perfectly translucent and pure, and will remain so, though kept for several weeks together in open vessels. The vapour arising from the hottest springs is collected and used by invalids in the shape of vapour-baths. There are chalybeate springs also in the neighbourhood, which is as remarkable for the salubrity of its climate and the luxuriance of its vegetation, as the varied and picturesque scenery in which it abounds. Indeed, a stranger may stay here for weeks, and never find himself at a loss for an unexplored ramble. The most remarkable object near the town, is not so much the castle as its extensive subterranean apartments, which some conceive to have been designed as places of shelter for persons and property, and others as constructed for the use of the 'secret tribunals' in the middle ages. The church, built on the site of some Roman ruins in the seventeenth century, contains the burying-place of the Margraves, and handsome monuments in memory of two of them, Lewis and Leopold-William; the hall of antiquities, built in the Doric style, and styled the 'Museum Palæotechnicum,' is a depository for all the remains of Roman antiquity brought to light on this spot. There is a small Lyceum in the town, besides the school for females attached to the nunnery, eight hotels with baths, an hospital, and adjoining the town a handsome 'promenade house,' with baths, reading and assembly rooms, &c. for the recreation of the visiters. The number of inhabitants is upwards of 4000.

BADEN, a town in the province of the Lower Ens in the Archduchy of Austria, about fifteen miles due south of Vienna; the 'Thermæ Cetiæ,' or 'Austriacæ,' of the Romans. It was almost entirely destroyed by fire in the year 1812, but has gained much in architectural beauty by the calamity. None of its older structures are left but the fine old Gothic church: among the modern edifices are the church of St. Augustine, the 'Weilburg,' a handsome imperial residence, the town-hall and theatre, the 'Sauerhof,' containing ninety dwellings, several baths, a military hospital, with baths for the reception of sixty officers and three hundred privates; the 'Maria-Zeller Hof,' purchased and endowed by the present emperor for the maintenance of ninety indigent sick persons; the hospital of the Virgin, built in 1815 by a society of ladies of rank in Vienna, for sixty invalids; a refuge for six men and women, founded by the townsmen themselves, and a multitude of establishments for the convenience of visiters. It is frequented by the fashionable people of the Austrian metropolis to the number of between twelve and fifteen thousand every season. The waters are sulphurous, and flow from eleven springs into fifteen reservoirs or baths, at the rate of 80,640 cubic feet every twenty-four hours. The temperature of the hottest spring is 30°, and of the coolest, 24° of Reaumur; or by Fahrenheit's scale, the former is 99°, and the latter 86°. Baden is a possession of the crown, contains about 500 houses and 4500 inhabitants, and has a park and delightful gardens, besides pleasing environs.

BADEN, a town in the canton of Aargau, in Switzerland, on the left bank of the river Limmat, thirteen miles N.W. of Zürich. It was once the capital of the county of the same name, and was taken in 1415 by the Swiss Cantons from the Dukes of Austria, who by the treaty of peace of 1418 gave up their claims to it. It was from that time held in common by the seven older cantons, as a subject bailiwick. In the war between the Protestant and the Catholic cantons which broke out in 1709, the Catholics took exclusive possession of Baden and of other parts of Aargau; but the troops of Bern and Zürich besieged Baden, the castle of which, after a vigorous resistance, surrendered

in 1710. By the peace of Aarau, 1712, the possession of Baden remained with the three cantons of Bern, Zurich, and Glarus, which sent by turns a landvogt, or *bailli*, as they call that magistrate in French Switzerland, to administer the country. The population of Baden and its district was reckoned at the close of the last century at 24,000 inhabitants. After the French invasion of 1798, and by the subsequent remodelling of the Swiss political system, Baden was incorporated with the new canton of Aargau. The town of Baden is small and dull; its population is about 1700, it is surrounded by walls; the castle, which was built on a steep hill, has remained in ruins ever since 1710. The population of Baden and its district is Catholic, although the surrounding districts are Protestant. The rich Benedictine monastery of Wettingen, which is two miles from Baden, in a delightful situation on the right bank of the Limmat, has been left in possession of its estates, and is one of the finest and wealthiest monastic houses in Switzerland. Baden is on the high road from Bern to Zurich. The baths of mineral water, which constitute the principal attraction of the place, are on both sides of the Limmat, half a mile below the town, and are much frequented in summer. A village has arisen round these springs, which is nearly as large as the town itself, and much more lively and handsome. It contains half a dozen large hotels, besides smaller ones, having each its private baths, an ordinary, and every accommodation for visitors. The numerous company that is found here in the summer months is drawn from every part of Switzerland, but chiefly from Zurich, the citizens of which town consider Baden as their regular watering-place. The language spoken here is Swiss German. There are two large common baths to which the poor have access gratis. There are several springs issuing from the ground; the hottest is 107° of Fahrenheit. The water contains carbonic-gas, marine salt, glauber salt, carbonate of lime, and magnesia. It is clear, and has a slight smell of sulphur, and is used for drinking, as well as for bathing. These baths are especially recommended for several complaints peculiar to females. The country round Baden is hilly, and the lower heights are covered with vines, but the wine made here is poor. These baths were known to the Romans by the name of Thermæ Helveticæ and are probably alluded to by Tacitus (*Hist.* i. 67). The neighbourhood of the Roman colony of Vindonissa, which is only three miles distant, contributed probably to their celebrity. In the middle ages the baths of Baden were much frequented, especially at the epoch of the Council of Constance, and Poggio, the Florentine historian, gives in his letters a curious, but perhaps an exaggerated, account of the licentious life people were leading at these baths. The annual Diet of the Swiss Confederation used to meet at Baden until 1712, when the meetings were transferred to Frauenfeld, in Thurgau.

BA'DENOCH, a district in the south-east division of the county of Inverness, in Scotland. It is bounded on the east by the counties of Elgin and Aberdeen, on the south and west by Athol, and on the north by Nairnshire. It derives its name from a term which signifies *bushy*, having been originally covered with natural forests, of which some of considerable extent still remain. It is thirty-three miles in length, and twenty seven in breadth. It is chiefly a mountainous district, and is but thinly populated. Loch Spey, the source of the great river Spey, lies in Badenoch. Not far from this is seen the towering summit of Cairngorum, a mountain which has long been celebrated for the beautiful rock crystals, of every variety of tint, found on it, and which were so eagerly sought after by lapidaries until crystals equally beautiful and at one-hundredth part the price, began to be imported from Brazil. Badenoch was in early times a lordship of the Cummins, who for many centuries were the most powerful family in Scotland. On its forfeiture by that family the celebrated Robert Bruce included it in the earldom of Moray, from which it was detached by Robert II., who granted it to his son, Alexander, so well known in Scottish history by the title of the 'Wolf of Badenoch.' The issue of the latter failing, the lordship of Badenoch remained in the crown until the year 1452, when it was given to the Earl of Huntley. Badenoch was long the property of the Gordon family, but has, within the last few months, passed into other hands.

BADGER (*Meles*, Cuvier), in zoology, a genus of plantigrade, carnivorous mammals, included by Linnæus among the bears, but, as well as the gluttons, racoons, coatis, &c., very properly separated from that group by succeeding naturalists. The Linnæan genus *Ursus*, as it came from the hands of the Swedish philosopher himself, was in fact very nearly equivalent to the modern family of plantigrade carnivora, and, according to the characters upon which he formed its definition, would have included the greater number, if not the whole, of the species belonging to this family which have been discovered since his time. The opinions of zoologists, however, with regard to the extent and relative value of the groups, the subordinate ones in particular, of the animal kingdom, have undergone a very considerable modification since the death of Linnæus; the multitude of new species which have been discovered since his time, the rapid progress which has been made within the last half-century in the science of comparative anatomy, and the application of the principles which this science has developed to the study of the habits and economy of animal life, rendered the subdivision of the greater number of the Linnæan secondary groups a matter, not merely of choice or convenience, but of absolute necessity. Among the earliest subdivisions of this description that were introduced into mammalogy was the separation of the gluttons, badgers, and racoons from the true bears, and their formation into distinct genera; so that the genus *Ursus* of Linnæus thus became a group of a higher order, itself composed of different genera; and the diversity of formation and habits observable among these animals fully justified this proceeding. Since that period other genera have been discovered and associated with the same group, so that the family of *Plantigrada*, as it has been called by Cuvier, at present contains a considerable number of carnivorous animals, differing considerably in the form of their dentition, as well as in their habits and economy, and agreeing only in the plantigrade formation of their extremities, that is to say, in resting upon the whole sole of the foot in the acts of standing, walking, &c., in contradistinction to digitigrade animals, which tramp only upon the toes. The various modifications which depend upon this conformation of the extremities, as they are exhibited throughout the family generally, will be explained in the article PLANTIGRADA, those which more particularly concern the badgers belong to our present subject.

This genus, as definitely characterized by modern zoologists, is distinguished by a system of dentition which is in many respects analogous to that of the moufettes (*Mephitis*), a genus of carnivora which, indeed, is scarcely to be recognized as differing from the badgers, except in the plantigrade, or rather semi plantigrade formation of their extremities. There is nothing remarkable either in the size or number of the incisor or canine teeth, the grinders, however, are in some respects peculiar, and it is this part of the dentition which principally distinguishes the badgers. There are four false molars in the upper and eight in the under jaw, two and four on each side respectively, followed by a carnassier and a single tuberculous tooth of large dimensions; the whole system is better adapted for masticating and bruising vegetable substances than for cutting and tearing raw flesh; and in fact the badgers are much less carnivorous than any other animal of the order to which they belong, except perhaps the bears. The quality of the food is, in all cases, necessarily dependent upon the nature of the dentition. The principal character of the feet in the badgers consists in their having five toes both before and behind, short, strong, deeply buried in the flesh, and furnished with powerful compressed claws, admirably calculated for burrowing or turning up the earth in search of roots. The legs are short and muscular, the body broad, flat and compact, the head more or less prolonged, the snout pointed, the ears small, and the tail short. Beneath the anus there is an aperture of considerable size, which opens transversely, and exudes from its inner surface a greasy or oleaginous matter of very offensive odour. The same formation is observed in many other genera of carnivorous mammals, though the quantities of the substance secreted differ according to the species. In the civets and genets, for instance, its smell is so pleasing as to entitle it to the rank of a perfume; whilst in the moufettes, on the contrary, its odour is so extremely fœtid as to have acquired for them, above all other animals, the generic name of *mephites*, or stinkards.

The badgers sleep all day at the bottom of their burrows and move about during the night in search of food. They are frequently accused of destroying rabbits, game, and even young lambs: but roots and fallen fruits appear to constitute the chief part of their food, and they certainly

exhibit a more marked taste for vegetable than for animal food, at least when kept in confinement. With the powerful claws of their fore-feet they construct a deep and commodious burrow, generally in a sandy or light gravelly soil: this has but a single entrance from without, but it afterwards divides into different chambers, and terminates in a round apartment at the bottom, which is well lined with dry grass and hay. The habits of the badgers are extremely solitary: they are never found in company even with the females of their own species, and as they sleep all day rolled up in their bed of warm hay at the bottom of their holes, they are always fat and in good condition: their flesh is relished in many places as an article of food. They carefully remove every thing of an offensive nature from their earths, never deposit their excrements in the vicinity of their habitations, and are even said to abandon them if accidentally or intentionally polluted by any other creature. In its geographical distribution the genus extends throughout the whole of Europe, Northern and Central Asia, and North America: we have no accounts of its extending into Africa or South America, in the former of which continents it appears to be represented by the rattel (*Gulo mellivora*, Desmarest), and in the latter by various species of moufettes (*Mephitis*). Australia possesses no species of mammal belonging to the plantigrade family, at least none has been hitherto discovered in that country; and in the Eastern Peninsula and Isles of India, the place of the badger is supplied by the telagon (*Mydaus meliceps*, F. Cuvier).

The number of species which zoologists admit into the genus *Meles* is very limited indeed: all writers, without exception, have followed M. F. Cuvier's example, in excluding the Indian badger, for the purpose of making it the type of a new genus, though for what reason it would be difficult to say, since the dental system of this animal has never been properly described, and in all its other characters it differs in no respect from the common badger. Many, again, are disposed to consider the American badger as only a simple variety of the European: so that, according to these authors, the genus includes but a single species. The observations of Dr. Richardson, however, have placed the distinctness of the American animal beyond a doubt; and so long as we have no definite observations to contradict the approximation, we shall continue to associate the Indian species with the genus to which its known characters so nearly assimilate it.

1. *The common Badger* (*M. vulgaris*, Desmarest) is about the size of a middling dog, but stands much lower on the legs, and has a broader and flatter body. The head is long and pointed, the ears almost concealed in the hair of the head, and the tail so short that it scarcely reaches to the middle of the hind legs; the hide is amazingly thick and tough; the hair uniformly long and coarse over the whole body, and trailing along the ground on each side as the animal walks. The badger and its congeners offer a strange intermixture of colours, which is seen in no other mammal, except those of the genera *Gulo* and *Mephitis*, which, as already remarked, approximate so nearly to it in many other respects: in general, the darker shades are found to predominate upon the back and upper parts of the body, and the lighter below; but in the animals above-mentioned this general rule is reversed, and it is the light shades which occupy the back and shoulders, whilst the dark ones are spread over the breast and abdomen. The head of the badger, for instance, is white, except the region beneath the chin, which is black, and two bands of the same colour, which rise on each side a little behind the corners of the mouth, and, after passing backwards and enveloping the eye and ear, terminate at the junction of the head and neck. The hairs of the upper part of the body, considered separately, are of three different colours, yellowish white at the bottom, black in the middle, and ashy grey at the point; the last colour alone, however, appears externally, and gives the uniform sandy grey shade which covers all the upper parts of the body: the tail is furnished with long coarse hair of the same colour and quality, and the throat, breast, belly, and limbs are covered with shorter hair of a uniform deep black.

Though the badger is found throughout all the northern parts of Europe and Asia, it is rather a scarce animal everywhere. Its food is chiefly roots, fruits, insects and frogs, but it likewise destroys the eggs and young of partridges and other birds which build on the ground, and attacks the nests of the wild bees, which it robs with impunity, as the length of its hair and the thickness of its hide render it insensible to the sting of the bee. It chooses the most solitary woods for its residence, is quiet and inoffensive in its manners, but, when attacked, defends itself with a courage and resolution which few dogs of double its own size and weight can overcome. It bites angrily, and holds on with great tenacity, which it is enabled to do the more easily from the peculiar construction of the articulation or hinge that connects its under jaw with the skull, and which consists of a transverse condyle completely locked into a bony cavity of the cranium. The badger is not mentioned by Aristotle, and possibly may not be found in Greece, as the antient language of that country has not even a name for it, and as it is less common in the southern than in the northern parts of Europe; Pliny however notices it under the name of *Melis* (viii. 38), and various other Roman authors have spoken of it. More recent writers also use *Taxus*, perhaps derived, like other Roman names of northern animals, from the German language, in which the badger is called *Zachs* or *Dachs*; in Dutch *Das*. The female brings forth her young in the early part of spring, to the number of three, four, or five; she continues to suckle them carefully for the first five or six weeks, and afterwards accustoms them gradually to shift for themselves. When taken young they are easily tamed, and become as familiar and playful as puppies; they soon learn to distinguish their master, and show their attachment by following or fawning upon those who feed them; the old, however, are always indocile, and continue solitary and distrustful under the most gentle treatment.

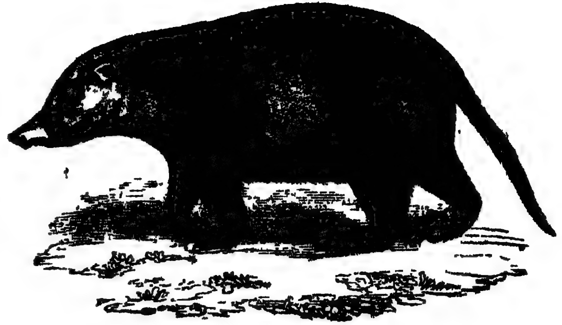
The badger is hunted in some parts of the country during the bright moonlight nights, when he goes abroad in search of food; his hide, when properly dressed, makes the best pistol furniture; his hair is valuable for making brushes to soften the shades in painting, and his hind-quarters, when salted and smoked, make excellent hams. This kind of food, indeed, is not so universally esteemed in our own country as in China, where Bell informs us that he saw dozens of badgers at a time hanging in the meat markets of Pekin; but there is no reason why it should be inferior to the flesh of the bear, which is universally esteemed by all who have an opportunity of tasting it.

2. The *American Badger* (*M. Labradorica*, Sabine) measures, when full grown, about two feet and a half from the muzzle to the root of the tail, which is six inches more. Its snout is less attenuated than that of the European species, though its head is equally long; its ears are short and round, the claws of its fore feet much longer in proportion than those of the common species, its tail comparatively shorter, its fur of a quality altogether different, its colours also very different, and its appetites more decidedly carnivorous; the head and extremities alone are covered with short coarse hair; all the other parts of the body are furnished with remarkably soft, fine, silky fur, upwards of four inches in length, and differing only in being rather more sparingly supplied on the under than on the upper parts. Taken individually these long hairs are of a purplish brown colour at the root, and afterwards variegated with alternate rings of black and light brown, but so arranged that the latter colour occupies the extremity, and consequently composes the predominant colour of the coat, which is a uniform mottled or silvery grey shade, as well upon the back and sides as upon the breast and belly; the ground colour of the head, cheeks and throat is white, but a dark brown or black band passes over each eye and ear from the muzzle to the occiput, and there are patches of the same colour, only of rather a lighter shade, surrounding the eyes and immediately in front of the ears. The legs, like the head, are covered with short coarse hair, which is a dark-brown colour, and the claws are very long, crooked, and of a pale horn colour, which is alone sufficient to distinguish this species from the European badger, which, though altogether a larger animal, has much shorter claws, and of a dark-brown colour.

The American badger is called *Brairo* and *Siffleur* by the Canadians, *Mistonusk* and *Awawteekæoo*, or the digging animal, by the Crees, and *Chocartoosh* by the Pawnee Indians. Its form and habits have been well described by Dr. Richardson in his admirable *Fauna Boreali-Americana*, a work of first-rate authority. 'The *Meles Labradorica*,' says Dr. Richardson, 'frequents the sandy plains or prairies which skirt the Rocky Mountains as far north as the banks of the Peace River, and sources of the River of the Mountains, in lati-

tude 58°. It abounds on the plains watered by the Missouri, but its exact southern range has not, as far as I know, been defined by any traveller. The sandy prairies in the neighbourhood of Carlton House, on the banks of the Saskatchewan, and also on the Red River that flows into Lake Winipeg, are perforated by innumerable badger-holes, which are a great annoyance to horsemen, particularly when the ground is covered with snow. These holes are partly dug by the badgers for habitations, but the greater number of them are merely enlargements of the burrows of the *Acetomys Hoodii* and *Richardsonii*, which the badgers dig up and prey upon. Whilst the ground is covered with snow, the badger rarely or never comes from its hole; and I suppose that in that climate it passes the winter, from the beginning of November till April, in a torpid state. Indeed, as it obtains the small animals upon which it feeds by surprising them in their burrows, it has little chance of digging them out at a time when the ground is frozen into a solid rock. Like the bears, the badgers do not lose much flesh during their long hybernation, for on coming abroad in the spring they are observed to be very fat. As they pair, however, at that season, they soon become lean. The badger is a slow and timid animal, taking to the first earth it meets with when pursued; and, as it makes its way through the sandy soil with the rapidity of a mole, it soon places itself out of the reach of danger. The strength of its fore-feet and claws is so great, that one which had insinuated only its head and shoulders into a hole, resisted the utmost efforts of two stout young men who endeavoured to drag it out by the hind legs and tail, until one of them fired the contents of his fowling-piece into its body. Early in the spring, however, when they first begin to stir abroad, they may be easily caught by pouring water into their holes; for the ground being frozen at that period, the water does not escape through the sand, but soon fills the hole, and its tenant is obliged to come out. The American badger appears to be a more carnivorous animal than the European one. A female which I killed had a small marmot, nearly entire, together with some field mice, in its stomach. It had also been eating some vegetable matters.' This account leaves little further to be expected, or indeed desired, relating to the habits and economy of the American badger. It may be observed, however, that Dr. Richardson's ideas on the subject of its supposed hybernation are at variance with the known analogies of its congeners, and in other respects seem to be contradicted by the fact which he himself states, that they are in the early part of spring, when they begin to leave their winter retreats, as fat as they were in the end of autumn upon retiring to them. As to the southern limit of the geographical range of the species, at least in one direction, it is known to inhabit Mexico, as appears from the detailed and correct description of Fernandez, who calls it by the native name of *Ilucoyotl seu Coyotlhumuli*; and a very fine skin was some time ago sent from California to the Zoological Society.

3. The *Indian Badger* (*M. Collaris*), called *Bhalloo-Soor*, or bear-pig, by the Hindoos, is about the size of the common badger, but stands higher upon its legs, and is at once distinguished by its attenuated muzzle ending in a truncated snout, like that of the common hog, and by its small and nearly naked tail. The whole height of this animal is about twenty inches, and the length of its tail nine inches. It has the body and limbs of a bear, with the snout, eyes, and tail of a hog. Its ears are short, completely covered with hair, and surrounded by a slight border of white. The feet are plantigrade, and have five toes on each, united throughout their whole length, and armed with vigorous claws an inch long. The muzzle is of a flesh colour, and nearly naked, having but a few thinly-scattered hairs on the sides; the belly also is nearly destitute of hair. The general colour of the hair over every part of the body is a yellowish white, with black points; thus giving a dark-brown shade to the coat, that appears in wavy lines when the animal moves. The throat is yellowish, and on each side of the head are two black bands which unite towards the muzzle; the inferior of these, which is very narrow, borders the upper lip; the other is much broader, and passes on each side of the eye, surrounding the ear, and descending on each side of the neck, to unite on the breast with the black colour which covers the anterior extremities uniformly. The whole of the throat, enclosed by these black bands, is of a similar colour to that of the body, but of a rather lighter and yellower shade. The hind legs are black, like the fore, and covered with short, coarse hair. The yellowish white predominates on the rump, and the tail is nearly naked, being but sparingly furnished with coarse scattered hairs, and in all respects similar to the tail of a domestic hog.



[Indian Badger.]

The individuals, a male and female, observed in the menagerie of the governor-general at Barrackpore by the French naturalist Duvancel, who furnished M. F. Cuvier with the statement from which the greater part of the above description has been extracted, were remarkably shy and wild. The female, however, was less savage than the male, and showed a certain degree of intelligence, which gave reason to believe that, if taken young, this animal might be easily domesticated. They passed the greater part of the day buried beneath the straw of their den in deep sleep. All their movements were remarkably slow. Though they did not altogether refuse animal food, yet they exhibited a marked predilection for bread, fruits, and other substances of a vegetable nature. When irritated, they uttered a peculiar kind of grunting noise, and bristled up the hair of their back; if still further tormented, they would raise themselves upon their hind legs like a bear, and appeared, like that animal, to possess a power in their arms and claws not less formidable than their teeth. This is confirmed by Mr. Johnson in his *Sketches of Indian Field Sports*. 'Badgers in India,' says he, 'are marked exactly like those in England, but they are larger and taller, are exceedingly fierce, and will attack a number of dogs. I have seen dogs that would attack an hyæna or wolf afraid to encounter them. They are scarce, but occasionally to be met with among the hills. In their nature they resemble the bear.'

MM. Duvancel and Cuvier write the native name of this animal *Balu-Saur*, which they properly interpret sand-hog; but we are credibly informed by a gentleman long resident in India, and well acquainted with the language of the country, that the real name is *Bhalloo-Soor*, which signifies the bear-pig, and alludes to the strange compound which it exhibits of the characters of these two very different animals. The orthography of the French naturalists is also incorrect; the words ought to be written *Balloo-Soor*, and with this correction it is very easy to perceive how the mistake in the name of the animal may have originated. In fact, a traveller like M. Duvancel, entirely ignorant of Hindustanee, or possessing but a very imperfect knowledge of that language, might very readily confound the words *Balloo* and *Bhalloo*, as pronounced by a native; since, as far as the mere sound is concerned, they only differ in the aspirate, though their meanings are very distinct indeed; Balloo, as correctly translated by M. Duvancel, signifying sand, whilst Bhalloo (Bhalla in Sanskrit) is the common Hindustanee name for a bear. Neither is the French traveller the first discoverer of this animal, as imagined by M. F. Cuvier. There is a description of it in Bewick's *Quadrupeds*, published at least thirty years before M. Duvancel's *Journey to India*, and accompanied with a tolerably good figure by that celebrated engraver. Nor is it to be confounded with the Indian badger of Pennant and Dr. Shaw, nor with that described under the same name by General Hardwicke, and figured in vol. ix. of the *Linnæan Transactions*, all of which, if not the ratel itself, are at least referable to a very proximate species.

BADI'STER, in entomology, a genus of the order *Coleoptera*, and family *Harpalidæ*. This genus, together with the genera *Trimorphus*, *Licinus*, *Rembus*, and *Dicælus*, form a conspicuous group among the carnivora of the beetle tribe. The type of this group is probably in the genus Licinus, under which head the characters of the genera, together with that of the group, will be given.

BÆTICA, one of the antient divisions of Hispania (Spain), so called from its chief river, the Bætis, now the Guadalquivir.

According to the arrangements of Augustus, Bætica was bounded on the west and north by the Anas (Guadiana); on the south by the Atlantic and Mediterranean, and on the east by a line drawn from near Ciudad Real, near the Guadiana, through Jaen and Granada to Moxacar, on the coast of the Mediterranean. Consequently, it comprised Sevilla; part of the Portuguese province of Alentejo, Spanish Estremadura, south of the Guadiana, the western part of La Mancha, Cordoba; the west part of Jaen, and the chief part of Granada.

Before the time of Augustus, Spain was divided by the Romans into two great divisions, Hispania Citerior and Hispania Ulterior, which latter was also called Bætica. The eastern limit of Bætica at this time was near Carthago Nova, Carthagena.

The district, Bætica, from which these two large divisions took their name, was the country drained by the lower course of the Bætis. The Sierra Morena on the north, and the western prolongation of the mountains of Granada on the south, close in the extensive plains of the lower Guadalquivir, which have so long been noted for their fertility. (Mannert, *Hispania*, Strabo, lib. iii.)

BAETIS, in entomology, a genus of the order *Neuroptera*, and family *Ephemeridæ*. This is one of the four genera of the British family of May-flies: the generic characters are taken from the number of wings and the setæ or hair-like appendages to the abdomen. The genus *Ephemera* has four wings and three setæ, *Baetis* has four wings and two setæ, *Brachycercus* has two wings and three setæ, and *Cloeon* has two wings and two setæ. These setæ are of great use to the little animal in steering its way through the air whilst performing that beautifully undulating flight which all must have observed. It is to the first of these genera (*Ephemera*) that the common May-fly belongs, under which head its metamorphosis and other peculiarities will be given.

BAEZA, BEATIA, a city of Spain, in the kingdom of Jaen, situated on a hill commanding a fertile plain which is watered by the rivers Guadalquivir and Guadalimar. The country round is productive in grain, wine, oil, and fruit. The town enjoys a very pure air. There are in it many fine buildings, the remains of its former grandeur, when it was in the power of the Moors. King San Fernando wrested it from the Mohammedan king in the year 1228, and in 1236, when that monarch conquered Cordoba, he added to his titles that of king of Baeza. In the collegiate church of Baeza are still preserved the coats of arms of the thirty-three knights who accompanied the king to the conquest, and were the first settlers in the new Christian city. The present population of Baeza is 14,265. The town contains nine parishes, three hospitals, seven convents for monks, and the same number for nuns, a cathedral, and a collegiate church. The episcopal see of Baeza was transferred to Jaen in 1248, after the conquest of the latter city, where it has remained ever since. Baeza is the capital of a district comprehending six towns: it is also the birth place of Gaspar Becerra, a celebrated sculptor and painter of the sixteenth century. Its distance from Jaen is eighteen miles; it is in 37° 57′ N. lat., 3° 28′ W. long.

(Miñano's *Dictionary*, Mariana, *Historia de España*.)

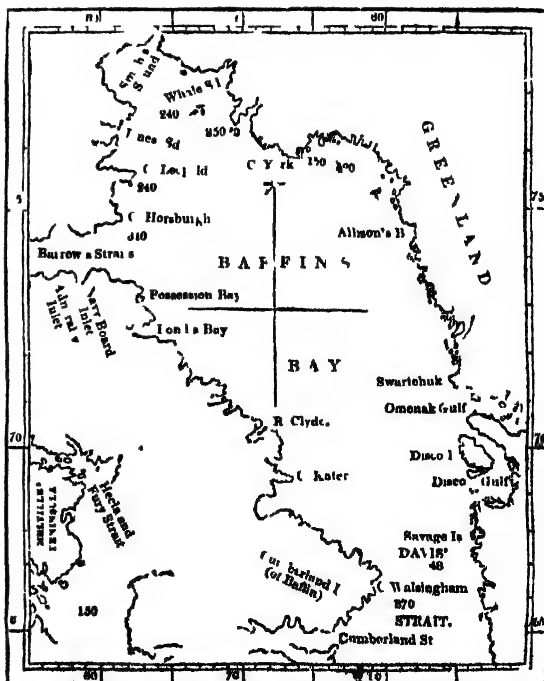
BAFFIN, WILLIAM, an enterprising English navigator of the seventeenth century. Of his early life nothing is known. In 1612 he sailed in the fourth voyage of Hall on discovery to the north-westward, of which the only account we have was written by him: it is remarkable as being the first voyage on record in which a method is laid down (as then practised by himself) for determining the longitude at sea by observations of the heavenly bodies. In the following year he went on a voyage to the coast of Greenland, in the narrative of which he notices the extraordinary refraction of the atmosphere, the quantity of which he calculated to amount to 26′ as a maximum when a heavenly body is on the horizon. In 1615 he was appointed mate and associate to Robert Bylot on another voyage of discovery, for the account of which we are also indebted to Baffin; and again the next year, he accompanied Bylot as pilot in an expedition which discovered and penetrated to the head of that extensive bay which bears his name. It appears rather strange that the bay was not named after Bylot, the commander of the expedition. Of this voyage Captain Ross observes that he found all the positions and descriptions of this able seaman remarkably accurate.

In 1618 Baffin was mate on a voyage from Surat to Mocha, and in 1621 he engaged in an English expedition acting in concert with the Persians to drive the Portuguese out of the Persian Gulf, in the course of which he was killed at the siege of Kismis, a small fort near Ormuz, while employed in measuring the distance from the place, for the purpose of cannonading it. (Purchas's *Pilgrims*.)

BAFFIN'S BAY is an extensive gulf on the N.E. coast of America, between the shores of that continent and the western coast of Greenland. It is comprised between the parallels of 68° and 78° N. lat., and the meridians of 51° and 80° W. long., and lies in a N.N.W. direction. It is about 780 miles long, with a mean breadth of about 280 miles, thus giving an area more than double that of the Baltic. It was first explored by Baffin in 1616, in company with Bylot, but his accounts of its extent to the northward were always much doubted, until corroborated by Captain Ross in 1818.

Its shores are generally high, with perpendicular cliffs rising sometimes to the height of 500 and 1000 feet above the sea, and backed by stupendous ranges of mountains always enveloped in snow. On the surface of the land above the cliffs is found a scanty appearance of vegetation, principally mosses and ground berries. The cliffs are frequently rent into deep ravines, which become filled with snow: as the snow increases, it projects into the sea, till, detached by its own weight, it forms the nucleus of those immense icebergs which are met with in these seas.

A peculiar feature is the prevalence along the coasts of those small high, and sharp conical rocks, whose form has suggested their being called *monuments*, as if they were the work of art. It is remarkable how void of large islands this tract of sea is, all those which border its shores (except Disco) being very small and the centre of the bay being entirely without them. The depth of water, wherever it has been tried has been found very great. The shores are deeply indented with sounds and bays, few of which have yet been examined. The ice, which extended in a compact state several leagues from the shore, prevented Captain Ross from exploring those two large arms to the northward, called, by Baffin, Smith's and Whale Sound, but the largest of these bays, formerly known as Sir James Lancaster's Sound, was passed through by Captain Sir Edward Parry in 1819, who gave it the name of Barrow's Straits.



The prevailing geological features of the coasts are granite and gneiss, abounding in garnets; there are also found porphyry, chalcedony, quartz, felspar, jasper, and a wood coal. Bears, black foxes, and hares; walruses and seals; ptarmigans, terns, gulls, eider and other ducks, auks, and

petrels, are the principal animals. The bay abounds in black whales, which are very large, and a great number of English vessels are annually employed in this fishery. The whale-ships were formerly confined to the shores of Greenland, by a barrier of ice which always occupies the middle of the bay, till Captain Parry, by pushing through it, showed them the way to a clearer sea and a more abundant harvest on the American shore. Vessels now often proceed safely into Barrow's Straits. Natives were found as high up as 77° latitude in Prince Regent's Bay, by Captain Ross, near which place a very singular phenomenon was observed in the crimson colour of the snow on the shore, tinctured by the soil. The Danes have settlements on Disco and Whale Islands. Captain Ross found no current towards the head of the bay, though it has been generally observed to set to the southward through Davis's Straits, which form the communication between Baffin's Bay and the Atlantic.

(Ross's and Parry's *Voyages*.)

BAFFIN'S ISLANDS, a cluster of three small, barren, and uninhabited islands on the eastern shores of Baffin's Bay. They are mentioned by Baffin as the Three Islands, but obtained their present name from Captain Ross. They are resorted to by numerous birds of various kinds. The water between them and the shore is remarkably deep. They are in 74° 1′ N. lat., and 57° 25′ W. long.

BA'FFO, a sea-port town on the western coast of the island of Cyprus, in 34° 50′ N. lat., and 32° 15′ E. long. It is a small town, which has declined from its former importance; its harbour is unsafe, and only frequented in summer. It is the residence of a Turkish aga, and of a Greek bishop, suffragan to the metropolitan of Nicosia. There is a castle which commands the harbour, and the ruins of another castle on a hill above the town. The Church of St. George, which is almost the only building remaining of the time when the Venetians ruled the island, is in possession of the Greek clergy. The country around Baffo is fruitful, and well irrigated by springs; it produces cotton in abundance, and much silk is also raised here. This place is called by geographers New Paphos, in contradistinction to Old Paphos, which stood farther to the south-east,—eleven miles according to the Peutinger table, and sixty stadia according to Strabo, and probably near where the village of Conuclia now stands. Mariti, who resided in the island for several years between 1760 and 1768, says that no traces of Old Paphos remained above ground, but that many tombs and other antiquities had been found under ground at and near Conuclia, but that on account of the jealousy and the extortions of the Turks, the excavations had been discontinued. Mariti reckons twenty-one miles from Piscopia, near the western bank of the river Lycus, at the southern extremity of the island, to Conuclia, or Old Paphos. Old Paphos is believed to have been built by the Phœnicians, and was famous in the most remote times for its temple of Venus. Homer (*Odyssey*, v.) speaks of it as the favourite abode of Venus. In Strabo's time Old Paphos still existed, and was annually frequented by a solemn procession of men and women from New Paphos, and from the other towns of the island. Strabo (xiv. p. 683) says that Old Paphos stood ten stadia from the sea, and had a harbour. He speaks also of New Paphos as a considerable place, having fine temples and a good harbour, and as having been built by the Arcadian chief, Agapenor, who, according to Pausanias, being driven on shore by a storm on his return from the siege of Troy, founded here a little kingdom. Under the Romans, New Paphos was the chief town of the western division of the island. It was destroyed by an earthquake in the reign of Augustus, but soon after re-built. St. Paul (Acts xiii.) came to Paphos, and there made a convert of the Roman deputy-governor, Sergius Paulus. The name of Baffo is a Venetian corruption of that of Paphos. (See Mannert, *Geographie der Griechen und Römer*, 6th part.)

BAGDAD (Pashalic). This important province forms the south-eastern part of the Turkish empire in Asia. Perhaps there is no Asiatic Pashalic the limits of which are defined with even tolerable precision; and the great extent and position of the Bagdad province prevent its boundaries from being distinctly ascertained. We may, however, consider it a tolerably safe approach to accuracy, to describe the Pashalic of Bagdad as bearing some resemblance in form to a triangle, the base of which is formed by a somewhat irregular line drawn from about 35° N. lat. 38° 40′ E. long. to nearly 37° N. lat. 44° E. long. The apex of this triangle is at the Persian Gulf, in 30° N. lat. and 48° 20′ E. long., and it is bounded on the south-western side by the border deserts of Arabia, and on the north-eastern by Persia and Persian Koordistan. Thus considered, the length of the territory is about 630 miles long by 450 of extreme breadth, comprehending the principal part of the antient Mesopotamia and Assyria, the whole of Babylonia and Chaldæa, and a considerable portion of Susiana. The part of Mesopotamia which is comprehended in the modern Pashalic of Bagdad is now called Aljezirah, or the Island; Babylonia and Chaldæa form Irak Arabi; Assyria partly corresponds to Koordistan; and the present Khusistan was the antient Susiana.

This extensive territory is traversed by the Euphrates and Tigris, which ultimately unite, and enter the Persian Gulf in a single stream. Within the Pashalic of Bagdad, and indeed in its whole course, the Frat, as the natives call the Euphrates, makes more extensive détours than the Tigris, but the course of the latter is more minutely serpentine than that of the Euphrates. The two rivers within the limits of this territory are most distant from each other between Rahaba Malek on the Euphrates, and the point where the Great Zab enters the Tigris, where the distance is about 180 miles; and the nearest approach is at Bagdad, where the distance of the Tigris from the Euphrates does not exceed thirty miles. The latter river may be considered to enter the Pashalic at the point where it receives the Khabour: the direct distance from thence to the junction of the rivers is about 500 miles, but by the winding course of the stream it cannot be less than 800 miles; and if we add to this the 150 miles after the junction, the entire course of the Euphrates within the Pashalic of Bagdad will be about 950 miles. From the Khabour to its junction with the Tigris, the Euphrates receives only a few very inconsiderable streams; on one side it has the deserts, and on the other the contracted region of Aljezirah and Irak Arabi. The Khabour itself is a small river originating in the union of several little brooks: it pursues a southerly course until it is joined by the westerly course of the Huali, and the united stream then pursues that direction to the Euphrates. The utmost rise of the Euphrates, during the floods of spring, is twelve feet; that of the Tigris is greater, perhaps twenty feet (Niebuhr says twenty at Bagdad), and thus such inundations are sometimes produced as are mentioned in our account of the city. The tide extends farther up the Euphrates than the Tigris; it reaches in the former river to the distance of sixty miles from Korna, while in the Tigris it scarcely extends to more than thirty-five miles. We may more precisely indicate the limits of the tide in both rivers, by stating that the spot is marked on the Euphrates by the tomb of a Moslem saint called Negaib, on the western bank; and on the Tigris by the mouth of the Deweish canal: these marks are, in both instances, a little above the limits of the spring tide. In the season of flood the tide does not extend so far up either river; but the disparity between the two is still maintained. At such seasons, a spectator placed at the point of the triangle formed by the junction of the two rivers may observe the tide flowing up the Euphrates on the one hand, while the strength of the Tigris forces it back on the other. On account of the two large cities of Mosul and Bagdad on the Tigris, the banks of that river may be considered more populous than those of the Euphrates; but the population of the latter is distributed among a greater number of towns and villages. In the whole distance between Bagdad and Korna on the Tigris there is only the miserable village of Koote; but the parallel distance on the Euphrates contains many villages, and some small towns.

Considering the Tigris to enter the Pashalic of Bagdad at the point where it receives the small river Kurnib, the direct distance to Korna is about equal to that of the Euphrates; and its numerous bends probably render its actual course fully as long. The banks of both rivers become very low as they approach to a junction, and those of the united stream are very flat. But the banks of the Tigris maintain a steep character much lower down than those of the Euphrates. The Tigris is locally called the Shatt-al-Dijile until it arrives at the canal of Shatt-al-Hie, when it receives the name of Shatt-al-Amarah, which it retains until its junction with the Frat. The river receives no tributaries from Irak Arabi, and the only stream of note that enters it from Aljezirah is the Aas-umeer. We do not find this river laid down in any map, and its course has not been traced; but it enters the Tigris in a stream thirty

feet wide in 35° 26′ N. lat., and the natives say that it comes down from the neighbourhood of Sinjar. From Korna to the ruins of Ctesiphon the Tigris receives no river on its eastern bank; but between that point and Mosul a considerable number enter it, all of which rise in and flow through Koordistan. The principal of these are the Great and Little Zab, and the Dialah. The Great Zab rises in the mountains of Persian Koordistan, and pursues a north-westerly direction, until it is joined by a small stream which comes down from the north; it then takes a south-westerly direction, and, traversing the breadth of Turkish Koordistan, empties itself with rapidity into the Tigris about forty-five miles below Mosul, and imparts its own turbid character to the subsequent course of that river. Its breadth where it enters the Tigris does not exceed 60 feet, although at the low-water horse-ford on the road to Mosul it is at least 200 feet wide. The Little Zab is a narrow but deep river which rises in the nearer declivity of the Koordistan mountains, and pursues a nearly direct S.S.W. course of 150 miles to the Tigris, which it enters in lat. 35° 10′, where its width is only 25 feet, although in its upper course, after it has received the Altun Su (golden water) at Altun Kupri (golden bridge), its breadth is nearly three times as great. It, however, discharges an immense body of water into the Tigris, which immediately after forms a fearful rapid and fall, which greatly endangers the rafts that navigate the river between Mosul and Bagdad. The Dialah is formed by the union of several small streams in the mountains behind Sulimanieh; and after it has received the Holuan and Arwand from the Kermanshah districts it becomes a considerable river, which discharges itself into the Tigris about five miles above the Tauk Kesra at Ctesiphon. It is crossed by a bridge of boats a little above its mouth, and its breadth is there sixty yards; and at Bakooba, about forty miles above its mouth, it may, during the summer, be forded on horseback, although its stream is very rapid.

The Shatt-al-Arab is the name given to the united stream of the Euphrates and Tigris. We should perhaps prefer to call the united stream by the name of one of those rivers: but the natives never do so—perhaps from inability to determine to which of the streams the distinction is most due: and it also agrees with their custom of calling a river by different names in different parts of its course. Our Humber, formed by the junction of the Ouse and Trent, is a parallel instance. After the junction, the river continues the direction which the Tigris was before pursuing, and after a course of about 150 miles enters the Persian Gulf by a single embouchure. The Shatt-al-Arab is navigable, in mid-stream, for vessels of 500 tons burden: but towards the banks there is such a labyrinth of channels, shallows, and sandbanks, as renders its navigation sometimes difficult and perplexing. This noble river receives from Persia the Kerah, and communicates dy the canal of Hafar with the Karoon. The Kerah or Kara-su rises in Ardelan, a province of Persian Koordistan; and after collecting all the rivers of that province and the northern portion of Luristan, it flows with a very tortuous course through the plains of Khusistan, passing near the ruins of Susa, and enters the Shatt-al-Arab about twenty miles below Korna. The length of its whole course may be estimated at four hundred miles, and its width at the mouth approximates to that of the Dialah. The Karoon rises on the western declivity of the Koh-i-Zerd, or yellow mountain, on the opposite side of which, the Zeinderood, the river of Ispahan, has its source. It proceeds westward, but in passing among the mountains of Luristan it takes a S.S.W. direction, receiving in its passage through Khusistan the river Abzal, which comes down from the north; after which it contains, in Kinneir's opinion, a greater body of water than either the Tigris or Euphrates. Whether, however, the Abzal joins the Kerah or Karoon appears still uncertain. Near Sabla it receives the Jerahi, and after it has passed Sabla its stream divides into two principal branches, one of which proceeds westward, as if to enter the Shatt-al-Arab; but at the distance of three miles from that river it rather abruptly takes a south-easterly direction, and flows to the Persian Gulf as a parallel and independent stream. Its former direction is, however, continued by an artificial cut, through which a portion of its waters enter the Shatt-al-Arab. The other principal branch of the Karoon at once takes a south-westerly direction, and enters the Persian Gulf by three distinct channels; and thus, with the main stream of the Jerahi, six distinct currents issue from the Delta into the sea at no great distance from each other, and this led early observers to conclude that there were so many mouths of the Shatt-al-Arab, although, in point of fact, that river flows in a single stream to the sea. It is for the sake of explaining this that we have spoken of the Karoon, although that river does not flow within our limits.

The country between the Euphrates and Tigris, from lat. 34° to Korna, is intersected by the dry beds of many natural and artificial canals. One or two of the latter in the vicinity of Bagdad might perhaps be made available for navigation without any enormous expense. The only canal now useful is the natural one of Shatt-al-Hie; it is about 100 yards in width where it opens into the Tigris, and is navigable during eight months in the year, but becomes nearly a dry bed in summer. Its stream divides at about thirty-five miles from the Tigris, and afterwards re-uniting forms an island of a form somewhat oval, and about thirty miles long by fifteen broad. The name Shatt-al-Hie is locally limited to the part between the Tigris and the point of separation; the western branch of the divided stream is called Bu Jehirat, the eastern Shatt-al-Amah, and the re-united stream is named Subbil. We avail ourselves of this opportunity of correcting a somewhat serious error in all the maps which we have seen. About half way between Koote and Korna, a river, called Mendeh, sometimes supposed to be the antient Gyndes, is represented to come down from the north and discharge its waters into the Tigris. A stream certainly appears at the spot indicated, but it is the Hid or Hud, a *canal* which receives its stream *from* the Tigris and conveys it in a south-easterly direction to the Kerah. Shortly after leaving the Tigris, it divides into several branches, the principal of which joins the Kerah about sixteen miles from Haweeza. Besides such waterless natural and artificial beds as we have noticed, others may be traced which extend in a direction parallel to the Tigris and Euphrates, and might have been originally intended not only to serve the purposes of irrigation and to drain the marshes, but to avoid the delay and trouble which vessels have now to encounter in following the windings of the river. The most important of these canals is the Naharawan, which commenced near Samara on the east side of the Tigris, from whence its remains may still be traced to below Koote; and although all further traces are lost in the marshes of Susiana, it appears that it originally extended to the Kerah. It received the Dialah in its course, and it is a fact notorious in the neighbourhood, that the existing channel of that river from the Naharawan to the Tigris is of comparatively recent formation. Ruins of towns on both sides of this noble canal, and aqueducts leading from it towards the Hamereen mountains on one hand, and to the ruined towns of the Tigris on the other, remain to this day. Much of the marshy land now existing near the line of its course has been formed by the waters once carried off by its bed. It is thus, and by their grit and debris, which in the course of ages have been carried far around by inundations and winds, that the numerous canals and aqueducts which once fertilized the country now contribute to increase its desolation.

In briefly describing the surface of the Pashalic of Bagdad, we shall consider separately the part to the east of the Tigris, that to the west of the Euphrates, and that between the two rivers. Of these three portions that to the east of the Tigris is the most fertile. In this part of his territory the Pasha of Bagdad divides with the Persians the country of Koordistan and the province of Khusistan. As the country and people of Koordistan require a separate notice, it will suffice now to state that the portion of Koordistan nominally subject to the Turks is the largest and finest part of one of the most beautiful countries of Asia. Koordistan is altogether a hilly country. The stern and lofty summits of the centre are exchanged, on proceeding towards the borders, for wooded and vine-clad hills, which inclose many beautiful plains, fertile valleys, and romantic dells. The Koords who live within the limits of the Turkish pashalic are not migratory. They are principally cultivators; and are generally governed by chiefs of their own choice. Their plains and valleys produce rice, wheat, barley, sesame, tobacco, gall-nuts, and all sorts of fruits, particularly grapes. The inhabitants of the other parts of the pashalic draw largely upon Koordistan for their agricultural produce. The people of Koordistan are all Soonees, and the Persians, being of the opposite sect, are not liked by them so well as the Turks. Nevertheless the Persians have acquired great

influence among the Koords of the Turkish empire, by very adroit interference in the quarrels of the chiefs among themselves. Sulimanieh, Kerkook, and Erbil are the principal towns of Turkish Koordistan: Sulimanieh is the capital of a pashalic of the same name, the territories of which are more extensive than those of any other chief in that part of the country; but the population of the town does not exceed 12,000.

The limits of Khusistan are so variously defined, that, in order not to multiply distinctions, we will consider it nearly to correspond to the antient Susiana, and to comprehend the country between the mountains of Luristan on the east and the Tigris on the west, and between the Dialah on the north and the Persian Gulf on the south. The climate of this district is, on the whole, very similar to that of the city of Bagdad. The province may be described as actually a desert, although no soil could, in its natural state, be more fertile; and this is true of extensive territories which are called deserts in Western Asia, which only want water, or the care of the cultivator, or both, to become luxuriantly productive. In Khusistan, however, extensive morasses have been formed on sites once inhabited, and the sands of positive deserts have encroached upon its once fertile plains. The spots that still retain a productive soil are chiefly in the neighbourhood of the rivers, and either afford good pastures or richly repay the labour of cultivation. The cultivated districts are almost exclusively within the territorial limits of Persia, although in reality the southern half of Persian Khusistan, and nearly all of Turkish Khusistan, are occupied by different tribes of Arabs, chiefly the Chaab and Beni-Lam. The Persian province of Shuster is peculiarly favoured by Nature, whose blessings, however, are turned to very small account. The Chaab sheik derives his principal revenue from extensive rice-grounds and plantations of date-trees on the Shatt-al Arab, on the Hafar, and on the Jerahi river. The dates of Khusistan attain very high perfection, and those produced in the Mendeli district are considered the very best in the Bagdad pashalic; which is not much less than to say that they are the best in the world.

The portion of the pashalic of Bagdad which lies to the west of the Euphrates may be dismissed very briefly. Beyond the immediate vicinity of the river, the whole territory is a desert of the most positive character—sandy, flat, without herbage, and without water. The banks of the river are, however, very fertile in many parts, and the annual overflowings of the river in its lower course form the most productive rice-grounds in the country.

That part of the pashalic which is comprehended between the Tigris and Euphrates is divided into Aljezirah and Irak Arabi. The former is that portion which extends from the northern limit of the pashalic to the point where the rivers approach each other near Bagdad. The whole of the interior of this region is a complete desert, generally sandy, and sometimes salt, affording only the unprofitable plants to which such a soil is congenial. The surface is less even than that of the Irak, and it is also distinguished by two small lakes, both of which are salt. The banks of the rivers, particularly on the Tigris, are in much better condition than lower down. There are more human habitations, more trees, and more cultivation.

Irak Arabi, the most fertile of countries in the time of Herodotus, is now almost a complete desert. The soil may in general be characterized as a sandy clay in a great degree covered with the rubbish of ruined towns and canals. Of these sufficient traces remain to afford the observer some notion of a system of irrigation which, for its extent, and the cost and labour which its establishment must have required, does not appear ever to have been equalled. The banks of the Euphrates and Shatt-al-Hie are not so perfectly desolate as those of the Tigris, but it is only near rivers and canals that we may expect any redeeming features in the scene. On the Euphrates the territory of the Khezail Arabs may be described as rich and beautiful. The district is not indeed very large, but it contains rich pastures and good cultivation, with numerous villages of an hospitable and courteous tribe.

The banks of the rivers, more especially the Tigris, are skirted to a very great extent with the tamarisk shrub, which in some places grows to the height of twenty or twenty-five feet, and the liquorice plant, which sometimes attains the height of ten or twelve feet. These two form the fire-wood used at Bagdad and other places. The willow and poplar also frequently appear as shrubs, but they are not so common as the former. Tradition states that the castor-oil plant once grew luxuriantly in the country, but now there is only one specimen, which grows as a tree on the site of antient Ctesiphon. The *asclepias Syriaca* is tall and abundant in some places; and it is worthy of note that its follicles are, when young, eaten as beans by the Arabs, although with us this lactescent tribe is deemed poisonous, and unfit for the food of man. The carob plant (*ceratonia siliqua*) sometimes attains the height of six or seven feet. Camel-thorn (*hedysarum alhagi*) is very common, and a species of buck-thorn is seen occasionally, as well as the blackberry bush. The caper shrub is rather common; the Arabs express a sweet juice from its berries, and eat the leaves as we do spinach. Among the other plants which fringe this desolate region the most common are, a rare species of rue; *rumex*, not very common; *chenopodium mucronatum*, very abundant; *colocynth*, the horizontal runners and gourds of which overspread large tracts of ground behind the brushwood which skirts the rivers; a beautiful species of *mesembrianthemum; centaurea*, very common; *lithospermum* and *heliotrope* are seen occasionally; and *lycium* and a beautiful twining species of *solanum* are very common, particularly the former. The marshes near the Tigris are in some parts thickly covered, in the spring, for the extent of many miles, with the blossoms of the white floating crowfoot. A species of *carex* and of *alopecurus* complete a list prepared from actual although rather cursory observation. Of the cultivated fruit trees, near the towns, the date is by far the most important, as it contributes largely to the subsistence of the population. Grapes, figs, pomegranates, quinces, &c., are very good and abundant; but apples, pears, oranges, &c., are of inferior size and quality; and cherries, gooseberries, strawberries, and currants are unknown. Melons, cucumbers, and onions, with other *cucurbitaceæ* and *asphodeleæ*, are most abundant and excellent; but of these, as well as of fruits and of cruciferous and leguminous plants, it may, with few exceptions, be stated that the species which are the rarest in this country are the most common in the Bagdad pashalic.

The principal wild birds of this region are black partridges, snipes, and wild doves; the lakes and marshes abound with wild geese and ducks, widgeons, and pelicans. The common fowl and pigeons are the only domestic birds. There are no turkeys; and geese and ducks are not domesticated. The wild animals are gazelles, lions, jackals, hogs, and hares. The lions are not numerous, and their haunts are chiefly among the sepulchral barrows of the Tigris. The jackals are more abundant and troublesome, and when they find an opportunity enter the towns and villages during the night. The domestic animals are horses, asses, mules, buffaloes, single-humped camels, and dromedaries. The horse of the country is a most beautiful animal. As beef is not an article of food, oxen are not reared for slaughter; but they are much employed in agricultural labour.

It is not to be understood that the direct authority of the pasha of Bagdad extends over the whole of this territory of at least 100,000 square miles. In the north the pasha of Mosul is appointed immediately by the sultan, and governs a small territory in some degree of independence, although he usually acts as if overawed by his great neighbour. In the north-east the Koords take care that the yoke of Bagdad shall not lie heavy upon them; and, latterly, the Persian government has much extended its influence and power in that direction. In the south, with the exception of the small districts around the few towns, the Arabs are the actual masters of all the country from Bagdad to the Persian Gulf, and from the mountains of Luristan to the frontier of Arabia Proper. The sheiks acknowledge a sort of dependence upon the pasha, with a sincerity proportioned to the strength of his government. Their dependence is, however, precarious and uncertain at best, and in the most favourable times it is as much as he can do to restrain them from ruining the commerce of the city by their depredations on the merchandise transported by water and by land. They, and some of the Koordish chiefs, are bound to furnish the pasha in time of need with a certain number of armed men; and if these contingents were properly furnished, the forces of the pashalic in time of war ought to amount to about twenty thousand men, but the regular forces of the pasha scarcely exceed three thousand men, part of whom have had some notions of discipline instilled into them by European officers. This small body must in all cases form the principal dependence of the pasha, who cannot with any

tolerable confidence calculate on his Arabian and Koordish troops, unless the case be such as to make it manifestly their interest to bring their forces forward.

As the above article may be found in some points to differ from previous accounts, it is proper to state that it has been drawn up chiefly from personal observation, and from unpublished papers and maps, for access to which the writer is indebted to the kindness of Lieutenant-Colonel Taylor, the British resident at Bagdad.

BAGDAD, a large city of Asiatic Turkey, formerly the capital of the great empire of the caliphs, and now of a pashalic of its own name. It is in 33° 20′ N. lat. and 44° 24′ E. long., on the banks of the Tigris, about 200 miles, in a direct line, above the junction of that river with the Euphrates, and 300 miles above the point where the united stream enters the Persian Gulf.

The external appearance of the city does not disappoint the expectations which may have been formed from eastern history and romance. It stands in a forest of date trees, which conceal the meanness of its buildings from the approaching stranger, but allow such glimpses of its splendid minarets and domes as prevent him from suspecting that the antient glory of Bagdad has entirely departed.

Bagdad is divided into two parts by the Tigris. It was originally built on the western bank of that noble stream; but the court having been removed, in the latter part of the eleventh century, to the opposite side, the more respectable part of the population gradually followed, and the original site became a sort of suburb, inhabited chiefly by the poor. This is the present state of the town, the whole of which, on both sides of the river, is surrounded by a high and thick wall of brick and mud, which is flanked at regular distances with round embattled towers. Some of these were constructed in the time of the caliphs, and in workmanship and size greatly exceed those of more modern date, and are now mounted with cannon in no very serviceable condition. The citadel is on the eastern bank of the Tigris, at the point within the wall where it abuts on the river, to the north of the city. It commands the communication across the river, but it is not of great extent, nor are its fortifications much above the general level of the ramparts of the city. It serves as an arsenal and barrack. The whole city wall on both sides of the river is about five miles in circumference; but a large portion of the area which it incloses is laid out in gardens and plantations of date trees. Under the wall there is a dry ditch of considerable depth, which may, when occasion requires, be filled from the river. We ought not to judge of Eastern fortifications by European rules. Successive travellers had spoken of those of Bagdad with contempt; but they have, in the recent troubles, been found adequate to the purposes for which they were intended.

The interior of Bagdad miserably disappoints the expectations which the exterior view may have raised. It is built on no regular plan, and there are few towns, even in Asia, the streets of which are so narrow and tortuous. They are not paved; they are full of inequalities, occasioned by deposits of rubbish, and rendered disgusting by dead carcases and all manner of filth, which would endanger the public health, were not the most noxious part speedily removed by the numbers of unowned and half-savage dogs.

In general, the houses do not, as in Western Turkey, present any windows to the street. Instead of a regular front with windows, there are high walls pierced by low and mean-looking doors; but in some of the better streets, the Turkish *kiosk*, or large projecting window, or else the Persian lattice, occasionally occur. The houses are mostly built of kiln-burnt bricks, which are not, when new, much unlike those employed in London, either in shape or colour: but new bricks are rarely employed unless in public buildings, as old ones can be easily obtained by turning up the ground in almost any direction around the city. The walls are, to appearance, of very great solidity and thickness; but they are only faced with brick, the space between being filled up with earth and rubbish. The houses are much higher than those in Persia. The latter have seldom more than one floor, with perhaps a cellar for lumber; but the houses at Bagdad have two floors besides the habitable cellars. The ground floor is occupied with baths, store-rooms, and servants' offices. The first floor contains the state and family rooms. The great height of the apartments on this floor makes the house as high as one of two stories in this country. The splendid and often elegant appearance of these rooms presents a striking contrast to the filthy and beggarly aspect of the streets. The rooms have often vaulted ceilings, which are decorated with chequered work and mouldings in very good taste. They are amply provided with windows of coloured glass, and the walls are so profusely ornamented with gilding, painting, and inlaid mirrors, as to make a stronger impression on a stranger than a detailed examination will, perhaps, be found to confirm. The buildings of a house in Bagdad commonly occupy two or three sides of the interior of a square court. In this court, which is paved with squared stones, some date trees are usually planted; and there is frequently a fountain in the centre. Access to the first floor is afforded by external stairs of stone, which conduct to the verandah, into which all the doors of that floor open. This verandah, which is supported by the walls of the ground floor, is generally wide, and paved with squared stones, and its boarded covering and carved screen are supported by pillars of wood, the capitals of which are often very curious.

In Bagdad, as in all other Turkish cities, the only public buildings of note are the mosques, the khans or caravanserais, and the bazaars. There are said to be about 100 mosques in the town; but not more than thirty are distinguished, in a general view of the city, by domes and minarets. The domes are remarkable not less for their unusual height than for being covered with glazed tiles, of various colours, chiefly green, blue, black and white, disposed with considerable taste. The minarets, which are more massive in their structure than those of Constantinople, and are without the conical termination which the latter exhibit, are also glazed, but in better taste than the domes, the colour being of a light brown, with a different colour to mark the lines formed by the junction of the bricks. These lofty minarets and beautifully-shaped domes reflect the rays of the sun with very brilliant effect. Some of the more antient towers are surmounted by the nests of storks, the diameter of which nearly corresponds with that of the structure.

The bazaars of Bagdad are numerous and extensive, but are in appearance much inferior to those of some other oriental cities of less note. Many of the streets of shops which compose them are long, tolerably wide and straight, and vaulted, in the usual manner, with brickwork; many others are narrow, and covered only with a roof of straw, dried leaves, or branches of trees, supported on flat beams laid across. The bazaars are, in ordinary times, well supplied with oriental produce and manufactures. The baths, as in all other oriental towns, are numerous. The khans, or caravanserais, which amount to about thirty, do not demand particular notice: they are inferior to those of some other Turkish towns, and do not admit of the least comparison with those of Persia.

The communication between the two parts of the city divided by the Tigris is by means of a bridge of thirty pontoons. Another mode of communication is by means of large round baskets, coated with bitumen, which are the wherries of the Tigris, Euphrates, and Dialah. The river is about 750 feet wide, in full stream, at Bagdad, and the rapidity of its course varies with the season. Its waters are very turbid, although perfectly clear at Mosul, and until the Great Zab enters the Tigris.

The existing antient remains in Bagdad are very few; but these few far exceed any of the modern structures in solidity and elegance. There are three or four mosques, the oldest of which was built by Mansur's successor in the year 785, and has now only remaining a minaret which is said to be the highest in the city, near the centre of which it stands. It commands a most extensive view over the town and adjacent country, and on a clear day the Tauk Kesra at Ctesiphon can be distinctly perceived from it. Of the mosques of more modern date, that of Abdul Kadder, although rivalled by two or three others, is the largest and finest. Underneath its lofty and beautiful dome are deposited the bones of a famous Sonni doctor of the above name, who lived at the latter end of the twelfth century, and who is considered the patron saint of Bagdad. This mosque is well supplied with water by a canal from the river, and the court is furnished with a vast number of cells for the accommodation of three hundred devotees, who are supported from the funds of the establishment. Bagdad was at one time the Athens of Mohammedan Asia, and the seat of, perhaps, more science than at that time existed in any other part of the world. The college, founded in the year 1233 by the Caliph Moostanser Billah, acquired great fame in the East: it still exists, as a building, near the

bridge of boats, but it has been transformed into a khan, and the old kitchen is now the custom-house. There are six gates in the entire wall; three to each portion of the city, as divided by the Tigris. The largest and finest is the Talism gate, which, according to an oriental custom, was walled up when sultan Murad IV. had passed through it on his return to Constantinople, after he had recovered Bagdad from the Persians. It has never since been opened. Outside the walls, on the eastern side of the town, there is a large burial-ground, in the midst of which is a tomb erected to the memory of the wife of the Caliph Harun al Raschid, the famous Zobeide of the 'Thousand and One Nights.' It was erected by the caliph's second son Abdallah al Mamoon, and is an octangular structure, capped by a cone which much resembles a pine-apple in shape. The ruins and foundations of old buildings, and even the lines of streets, may be traced to a great distance beyond the present walls of the town. On the western side these remains extend nearly to Agerkuf, or the 'Mound of Nimrod,' as it is called by the natives. This structure must originally have stood at no great distance from the gates of the antient city. It is now reduced by time to a shapeless mass of brickwork about 126 feet in height, 100 feet in diameter, and 300 feet in circumference at the lower part, which, however, is much above the real base. The natives think, and travellers generally concur in the opinion, that it was originally intended as a beacon on which signal-fires might be kindled. But the late Bishop of Babylon, M. Coupperie (in a letter published in the *Annales de l'Association de la Propagation de la Foi*, 1830), is strongly of opinion that it was designed for a grand observatory; and the zeal with which astronomy was cultivated in this country, as well under the Arabian caliphs as in times more antient, renders this conjecture as probable as any we have seen. There is a view of this mass of brickwork in Ives's *Travels*, p. 298; and in Sir R. K. Porter's *Travels*, vol. ii. p. 277. (See Niebuhr's account of it, *Reisebeschreibung nach Arabien*, &c., vol. ii. p. 305.)

The climate of Bagdad is salubrious, but intensely hot in summer. From our own carefully registered observations, during a year in which the temperature was considered by the natives to have been at a fair average, the summer heat seems to be rather exaggerated by some travellers. It is still, however, much greater than the geographical position of the place would lead a person to expect; and this is easily accounted for by its situation in a vast naked plain on the borders of a desert, as well as by the prevalence, during part of the summer, of the hot wind, the *samiel*. This wind is popularly considered to prevail during forty days, but its actual duration is often twice as long; during which period it commonly rises about noon, or somewhat earlier, and continues until three or four o'clock in the afternoon. It is felt like a gentle breeze which has just passed over the mouth of a lime-kiln. At Bagdad it does not appear to produce any bad effect, either upon the health or lives of the natives, or even of Europeans. Its heat, nevertheless, and that of the summer months in general, is so oppressive and relaxing, and of such long continuance—without the intervention of storms, or showers, or cloudy days—that the spot would at that season scarcely be habitable but for two compensating circumstances: one of these is the bracing coolness of the nights, to enjoy which the people sleep upon the flat roofs of their houses from the middle of May to the latter part of September; the other is provided by the people themselves, who have under their houses spacious vaulted cellars, called *serdaubs*, in which persons whose circumstances or occupations allow it live almost entirely by day during the summer season. These cellars are rather gloomy abodes; the light is very sparingly admitted; but the apartments are well ventilated by excellent wind-chimneys, which appear on the house-tops like massive towers strengthening and crowning the parapet. On these ventilators the numerous storks which frequent the city in the summer build their vast cylindrical nests. It is remarkable, that the people are in the habit of complaining more when the summer temperature does not attain its usual height than when it exceeds. They say that, in a summer less than usually warm, sickness abounds in the city; and medical men, to whom this has been mentioned, are of opinion, that, having been all their lives accustomed to the discharge of a certain quantity of perspiration in summer, any considerable diminution of that quantity may operate injuriously [illegible] health of the people.

Snow never falls at Bagdad, and hail very seldom. In the month of January, the freezing of towels hung to dry upon the river, and the formation of a thin surface of ice upon water left standing in jugs in the open air, are regarded as indications of a surprising degree of cold. The people, nevertheless, suffer more from the cold of winter than would be imagined: this arises from their rooms being exclusively constructed for summer use; and from the temperature of the same rooms being very little heightened by the braziers or earthen pans of charcoal which, in the absence of stoves and fire-places, are employed. On the subject of temperature, the following table, although not so complete as might be desired, will be found to afford more information than has been hitherto furnished. It shows the highest and lowest observed temperature for every month in the year in three different situations. As our observations commenced in the middle of April, 1830, and concluded early in March, 1831, the lowest temperature of the former month, and the highest of the latter, could not be obtained, and are not stated. The time of observation was changed with the length of the days, from half past six to eight o'clock in the morning, and from two to three in the afternoon. The first observation was in an ordinary inhabited room, the second was in the verandah, and the third on the house-top. Summers considerably warmer than this of which we speak are not unusual; but a colder winter is exceedingly rare.

	Room		Open Shade		Sun	
	Lowest	Highest.	Lowest.	Highest	Lowest.	Highest.
1830.	°	°	°	°	°	°
April .	—	81	—	88	–	113
May .	73	91	71	108	80	122
June .	87	98	79	109	86	125
July .	89	102	84	113	90	134
August .	93	104	87	119	95	140
September	68	97	77	106	89	127
October .	70	90	61	110	72	121
November	59	77	46	84	51	102
December .	57	64	51	67	53	90
1831.						
January .	48	63	37	69	43	88
February .	55	66	48	77	54	95
March .	59	—	52	—	61	—

At three in the afternoon, during the warmest months, it was generally found that the temperature in the inhabited cellars was two or three degrees less than it had been in the ordinary rooms at eight o'clock in the morning of the same days.

A drop of rain rarely falls at Bagdad later than the beginning of May, or earlier than towards the end of September. After the end of September, the rains are copious for a time, but the winter is, on the whole, dry; and although we do not possess a minute register of every rainy day, we think we may safely state that the number of days on which any rain falls, in the whole year, does not exceed twenty-five. Nevertheless, the autumnal rains at Bagdad, and other parts of the country, are so heavy, that the Tigris, which sinks greatly during the summer months, again fills its channel and becomes a powerful and majestic stream. This occurs again in the spring when the snows dissolve on the distant mountains. The low lands on both sides of this river and the Euphrates are then inundated; and when the fall of snow has been very great in the preceding winter the country between and beyond the two rivers, in the lower part of their course, assumes the appearance of a vast lake, in which the elevated grounds look like islands, and the towns and villages are also insulated. Perhaps the history of this city does not offer an instance of an inundation so calamitous as that of the year 1831, when the flood was so extensive and of such long duration, that the waters found an entrance to the city, and so many buildings were swept away by the first irruption, and so many more were undermined and fell from the long continuance of the water in the cellars and the streets, that fully one-half of the town was ruined, with little prospect that it will speedily recover. Thousands of lives were also destroyed; and as the most destructive plague which had visited Bagdad for sixty years was at the same time raging, the combined operation of these calamities reduced the population from about 75,000 to 20,000 or 25,000. Our latest advices do not inform us that any great progress has been made in re-building the town or restoring its population.

The plague is observed to visit Bagdad at intervals of ten years; but the amount of destruction which it generally effects is exceedingly light compared with that to which we have just adverted. There is only one other malady to which the Bagdadees are much exposed that we need particularly mention: it is a cutaneous disorder, which some call the 'Aleppo malady,' and others the 'Aleppo button;' but although Aleppo may be its native city, it is not so prevalent there as at Bagdad. It is first a tumour, and then a wide, deep, and distressing ulcer, for the cure of which no means have hitherto been found, until, after six or eight months, it heals of itself. It leaves an ugly and indelible scar, and as one seldom comes alone, and children are generally attacked in the face, the countenance suffers so greatly in consequence, that the people of Bagdad may, without injustice, be considered the ugliest people in Turkey. Adults are generally attacked in the limbs. It is said that those who have once suffered this disorder are exempt from future attacks.

The population of Bagdad is exceedingly mixed; and the very distinctive dresses of each people clearly indicate the component parts of the population. The Osmanli Turks scarcely ever wear at Bagdad the embroidered jacket, capacious trowsers, and close cap so common in the neighbourhood of the capital: the civil dress prevails—the long loose gowns of cotton, muslin, or silk, with wide shapeless cloaks of broadcloth or shalloon: while the red cap, with its blue tassel, instead of fitting close to the head, hangs loosely backward, and is wound about with white muslin, flowered with gold. Christians dress much in the same manner. They are not, as in many other towns, restricted from light colours in their dress, or from wearing yellow slippers; but they are expected to abstain altogether from green colours and from white turbans. The Jews are generally distinguished by having their red caps fitting close to the head, with only a yellow handkerchief tied around them. As the religious are not distinguished in the same manner in other Turkish towns, it is worth while to mention this. The Arabs form a very important part of the resident population, besides a large number from the desert as occasional sojourners. They are distinguished chiefly by their head-dress, which consists of a coarse shawl of silk and cotton, with wide stripes of red and yellow; this is folded triangularly, and laid upon the head, around which a thick roller of brown worsted is then passed. The ends of the shawl cover the neck and shoulders; and as it is also furnished with a fringe of knotted strings which hang down the back, it helps to give a wild appearance to the Arab countenance. They are also distinguished by their wide sleeveless cloaks, which are wholly black, or white with a wide stripe of blue, brown, or red. This cloak (*abba*) is made of hair and wool, and when confined at the waist by a leathern belt, it generally, with a coarse shirt underneath, forms the entire dress of an Arab. His turban also distinguishes the Koord: it is frequently of silk, with stripes of blue, red, and white; and its fringe of knotted strings, though not so long as in the Arab turban, which is also differently worn, excellently sets off the bold, grave, and strongly-marked countenance of the pure Koord. Then there are, in considerable numbers, the active and animated subjects of the Persian king, in their curly, black, and conical caps, high-heeled slippers, and gowns of green or blue, which are distinguished from those of other eastern people by their tightness in the body and the sleeves. Such are the figures which, on horseback or on foot, appear in the streets of Bagdad, or sit smoking by the way-side. It would be incorrect and impossible to comprehend these various masses of people under one general character. They can only be spoken of in the mass with a reference to their knowledge; and it may be said that they are prejudiced, self-conceited, and bigoted, because they are profoundly ignorant. There is not among them that due proportion of informed and educated men which redeems the character of a people. In those countries, two-thirds of the small amount of knowledge which is the object of the education afforded to the higher classes, is not worth knowing. The Armenians are decidedly the best-informed people in the city. Many of them have been in India, and several have spent much of their lives in that country. They have thus become acquainted with English manners, institutions, and modes of government; and through them much information is communicated to their countrymen who have not enjoyed a similar advantage. They, and the more respectable Moslem merchants in the town, long for such security of property and person as is enjoyed under the British government in India. This, combined with the presence of an English resident, who is much respected and possesses great influence, secures a European from that open insult to which he is much exposed in many Mohammedan towns.

We cannot give any precise statement of the numerical proportion of the different parts of the population; but it is perhaps an approximation to state that four-fifths of the entire number are Turks and Arabs in nearly equal proportions. In the remaining fifth the Jews are apparently the most numerous. To them the vicinity is consecrated, by the recollections of their captivity, and by the tombs of the prophets Ezekiel and Ezra. The latter is situated not far above the point where the Tigris joins the Euphrates, and forms a place of pilgrimage to both Jews and Moslems.

The only women in Bagdad who exhibit any part of the face in the streets are the Arab females. Their dress consists in general of an exceedingly wide chemise of red or blue cotton, to which in winter is added one of the same cloaks that are worn by the men. They seldom wear shoes, and never stockings; but about the head they wear a mass of black cotton or silk stuff, which is rather gracefully disposed. It is brought round so as to cover the neck and throat and the lower part of the face. This head-dress is often profusely ornamented with beads, shells, and current and antient coins. They are also fond of wearing anklets and bracelets of silver, which are generally more than an inch in diameter, and suggest the idea of shackles rather than ornaments. But their most whimsical decoration is worn on one side of the nose, which is bored for the purpose: it consists of a gold or gilt button, about the size of a halfpenny, in the centre of which a small torquoise stone or a blue bead is inserted. Their faces, arms, and other parts of their bodies are also decorated with stars, flowers, and other figures, stained on the skin with a blue colour, and the effect of which is exceedingly unpleasing to a European eye. The Turkish and other women so muffle themselves up when they go out, as to appear the most shapeless masses imaginable. They are enveloped in large sheets of checked blue linen, which cover them from head to foot. These sheets are sometimes of crimson silk, striped with white. Their legs are inclosed in formidable jack-boots of yellow leather; and their faces are covered with a stiff and thick black horse-hair veil, through which they can see perfectly, although it appears to the spectator like painted tin. Ladies of any consideration generally ride out astride on the backs of mares or asses,—most generally the latter, which are fine large animals, and in many parts of the town are kept standing, ready saddled, for hire. Asses of a white colour are common, and are preferred for this service; but the unfortunate taste of the people requires their appearance to be improved by stains of a dusty orange colour.

Bagdad was formerly a great emporium of eastern commerce. Besides the traffic with its own manufactures, it was the entrepôt for the commodities of eastern and western Asia. It was still, until very lately, a place of considerable trade, the commodities of India being brought thither by water, and from thence dispersed, by land, to different parts of the Turkish empire; the Persians, also, took to Bagdad such of their goods as were intended for the Turkish market. But as the Persians now send to Constantinople, by the safer and more direct road of Erzeroum and Tocat—as trade in general has not been encouraged of late years by measures of enlightened and liberal policy—as the government has been too weak to protect the property of the merchants from the Arabs of the river and the desert—and as commercial business was greatly interrupted in the late calamities of plague, war, and inundation, trade is now in a very low state indeed, with few symptoms of revival. But it may be expected that if the contemplated steam-navigation on the Euphrates be carried into effect, it will operate favourably on the welfare of this renowned city; particularly if a canal be opened a little above Bagdad, through which the vessels may pass from the Euphrates into the Tigris.

The manufactures of Bagdad are not very numerous or extensive. The red and yellow leathers are excellent, and are held in high estimation throughout Turkey. Another principal manufacture consists of pieces of a sort of plush, in shawl patterns, often very rich and beautiful, and used by the Turks for covering the cushions which form their

divans or sofas. The Arabian 'abba or cloak, which we have already mentioned, is rather extensively manufactured at Bagdad some of the qualities are very fine, and the use of the article is not at all confined to the Arabs, to whom it properly belongs If we add to this some stuffs of silk and cotton, the list of the principal manufactures of the place is completed.

Bagdad was founded by the Caliph Abu Jaafer al Mansur, in the year 763 A D, whether on the site of a former city or not, is unknown, but it is agreed that the materials were drawn from Ctesiphon and Seleucia The town was much improved by Harun al Raschid, who is said to have been the first who built on the eastern bank of the Tigris, connecting the two parts by a bridge of boats It remained a most flourishing metropolitan city until the year 1259, when the town was taken by storm by Hulaku, a grandson of Ghengiz Khan, and the dynasty of the caliphs was extinguished Bagdad remained under the Tartars until the year 1393, when it was taken by Timur Beg (Tamerlane), on whose approach the Sultan Ahmed abandoned the place and took refuge in the territories of the Greek emperor It was soon, however, retaken by Timur, and for several subsequent years it was alternately in his possession in that of the deposed Sultan, or of the Turkoman Kara Yusef The last of these princes ultimately remained in undisturbed possession of the place, and it continued with his descendants until 1470 A D, when they were driven out by Ussum Cassim, whose family reigned thirty nine years in Bagdad, when Shah Ismael the founder of the Suffide dynasty in Persia, made himself master of it From that time to the present the town has been an object of occasional contention between the Persians and the Turks It was retaken by the Turkish sultan, Solyman the Magnificent and it was regained by Shah Abbas the Great of Persia but the Persians were ultimately obliged to surrender the place to the Sultan Murad IV, by whom it was besieged with an army of 300,000 men, in the year 1638 A D It has since been nominally subject to the Porte, but the Pashas have for the last hundred years, been nearly independent of the sultans, particularly since the government has been in the hands of the Georgian Mamelouks, brought when young, as slaves to Bagdad, and instructed in the Moslem faith In the year 1831 the present sultan aimed at their power a blow which might not, in ordinary circumstances, have been formidable, but which was rendered effective by the immediately preceding desolation of the city by plague and inundation Nevertheless, the town held out for three months, and then it was rather the want and misery within its walls than the force of the besiegers which compelled a surrender Daoud Pasha was sent, without disrespect, to Constantinople as a prisoner, and he was lately living in retirement at Brusa The other Georgians were at first treated with consideration but were finally put to death at different times and under various pretences scarcely one of the number remains alive The conqueror, Ali Pasha, formerly of Aleppo brought to Bagdad a very high reputation for talent and energy of character, but from mistaking his position, and from his ignorance of the character of the people with whom he has to deal he has become highly unpopular, and his authority and personal safety have already been frequently endangered by revolts either of the people within the city, or of the Arabs around it

BAGHERME [See BEGHARMI]

BAGLI'VI, GEORGE, a distinguished physician, was born in 1668, but at what place is not ascertained, Haller affirms that Ragusa was his birth place, but Commenus asserts that it was Lecce, in the kingdom of Naples Having early manifested an inclination to the study of medicine, he began his studies at the University of Naples and continued them at Padua, where he took his degree of Doctor of Medicine. He endeavoured to increase his knowledge by visiting almost all the hospitals of Italy, Dalmatia, &c, after which he settled at Rome His merits and acquirements having been made known to Pope Clement XI, he was, though yet very young, by him appointed professor of surgery and anatomy at the college of La Sapienza, called the Roman Archilyceum.

In the address prefixed to his *Specimen Quatuor Librorum de Fibra motrice* he states that after the perusal of many works, he at last confined his attention to the works of Hippocrates, which he learnt almost by heart; and in his practice endeavoured to limit his attention to a careful observation of the phenomena of disease, and to found his rules of treatment upon sound principles, dismissing the theories which then held the medical profession in a state of slavish subjection to the authority of names Such was his independence of mind, that, notwithstanding his respect for Hippocrates, he differed from him and all previous writers in discarding the doctrines of the *humoral pathology*, or that theory which ascribed all diseases to some altered state of the *fluids* of the body He, on the other hand, not only from his own observation and reflection, but from learning the mode of treating diseases in India and other parts of the East, the success of which was entirely owing to an action on the solids primarily, maintained that the *solids* were, in most cases, first affected, and the fluids, when affected at all only secondarily

These opinions he published in 1696, and strengthened them by further observations and experience, which he made known in successive editions of his work, of which six appeared before 1701

It must be allowed that preparations had been made for an overthrow of the antient doctrine by the publication of various observations and opinions in different countries, particularly Willis's *Cerebri Anatome*, 1664, and *Pathologia Cerebri et Nervosi Generis*, 1667, in England, and Vieussens's *Neurographia Universalis*, 1685, in France, in which works the share which the nervous system had in the production and character of diseases was shown, and above all by Glisson's *Tractatus de Ventriculo et Intestinis*, 1671. 'It was in this last work that the hypothesis of muscular irritability was originally brought forward as a specific property which is supposed to be attached to the living fibre, and from which is deduced its peculiar power of contraction To these succeeded Baglivi, with more extended views and more accuracy in his principles These are detailed chiefly in his *Specimen Quatuor Librorum de Fibra motrice* Valuable and just as are many observations and conclusions in this Treatise, he greatly erred in ascribing the contractions and relaxations of the muscular fibres to certain imaginary contractions and dilatations of the fibres of the dura mater See *Specimen*, lib 1 cap x

His opinion, that the fluids are affected secondarily in consequence of a previous affection of the solids, has been gradually gaining ground since the time it was first promulgated It received important additions from Hoffmann, in Germany (see Hoffmann's *Medicina Rationalis Systematica* vol iv, s 1 chap iv), and Cullen in England (*First Lines of the Practice of Physic*, Preface, *et passim*). Still the most candid pathologists of the present time admit that in a few cases, perhaps, the fluids are primarily affected (see Andral's *Pathology* by Townsend), yet the opposite doctrine may be considered as the current hypothesis of the present day, and Baglivi the father of the modern system of *solidism*

Baglivi died at Rome in 1706, at the early age of thirty eight worn out by his arduous exertions The first complete edition of his works is that of Lyons, 1704, entitled *Opera omnia Medico-practica et Anatomica*, 4to, and reprinted at the same place, 1710, 1715, 1745, also at Paris, 1711, Anvers, 1715 Basle, 1737, Venice, 1754 Pinel published an edition with notes, corrections, and a preface, 2 vols 8vo, 1788 Baglivi was a Fellow of the Royal Society of London His works have never been printed in this country, and copies of them are rare

BAGNA'RA, a town in the kingdom of Naples, in the province of Calabria Ultra II, situated on the coast of the gulf of Gioja, and at the foot of a lower ridge of the Apennines which here runs close to the shore Several streams descending from the mountains in little cataracts fall into the sea at and about this place Bagnara has some good buildings close to the beach; its population is about 2000. The women of Bagnara have the reputation of being remarkably handsome. Bagnara is five miles N.E. of Scilla, eight miles S S W of the town of Palme, and eight miles E. of Cape Pelorus in the island of Sicily.

BAGNÈRES-DE BIGORRE, a town in the department of Hautes Pyrenées (High Pyrenees), 414 miles S S W, of Paris, through Perigueux, Agen, and Auch, or 534 miles through Orléans, Limoges, Cahors, Montauban, Toulouse, and Auch. 43° 3′ N lat., 0° 8′ E. long from Greenwich.

This town, situated near the beginning of the valley of Campan, at the entrance of the smaller valley or dale called *La Férule*, and on the left or west bank of the Adour, is, like our own Bath or Cheltenham, the resort of those who

seek for health or pleasure. It owes its attractions to the beauty of its situation and the celebrity of its medicinal waters.

The road from Tarbes, which is between Auch (where the two routes from Paris, above described, unite) and Bagnères, is delightful. On each side are large orchards well stocked with fruit trees to which the vines are trained; the millet grows among the trees: and neat cottages, built of the pebbles brought down by the Adour, and sometimes covered with thatch, often with slate, give additional beauty to the landscape. This rich and extensive plain, the plain of Bigorre, is covered with a thick bed or layer of these pebbles, which increase in bulk as the traveller approaches the mountains. Nearer to Bagnères the country assumes the appearance of an English park: and the meadows are so well irrigated as to present a covering of beautiful verdure.

The town of Bagnères is at the foot, and on the eastern side of a limestone hill covered with green turf, and shaded with oaks and beeches. From the sides of this hill the medicinal waters flow which supply the public and private baths. The number of the springs has been reckoned at thirty-two, but some are no longer in existence, or have taken another course. There are about seventy baths. They are of various degrees of temperature, from 26° to 46° of Reaumur's thermometer, or from about 90° to 135° of Fahrenheit's. Some accounts make the temperature of one spring (that of Salis) 50° of Reaum., or 144° of Fahrenheit. The spring in highest estimation is that entitled *du Salut*. It is about a mile S.W. of the town, in a tolerably deep ravine between rocks of grey limestone. The spring *de Salis*, mentioned above, is used principally for the cure of wounds. The waters of all the baths differ only in temperature: they are clear, and without any peculiar taste, aperient, and tonic. They are frequented twice in the year, in spring and autumn.

The streets of Bagnères are twenty-two in number, well laid out, watered by streams from the Adour, and of sufficient breadth. The neatness of the town is attested by the singular remark of a French traveller, that 'it seemed as if one of the kings had caused it to be purchased in Holland, to serve as a model to his subjects in the southern provinces.' The pavement is composed of round pebbles from the Adour, arranged in the form of a mosaic pavement, as fatiguing to the feet as it is pleasing to the eye. There are delightful walks in the neighbourhood, in the valley of Campan and along the banks of the Adour. There are horse-races yearly at the village of Pouzac, distant two or three miles to the N.E., on the road to Tarbes: and the town contains plenty of establishments of various kinds for relaxation and pleasure, such as a library, and reading-rooms, and the establishment of Frascati, where are accommodations for dancing, reading, bathing, gaming, theatrical performances, &c.* In the centre of the town is an oblong *place*, or open space, planted with two rows of fine trees, and surrounded with tolerable houses: it is called *Le Coustou*. The church of St. Vincent contains some pictures and figures in wood executed here. There are a high school and an hospital for the poor.

The celebrity of Bagnères is not of very modern date. Montaigne, who wrote in the latter part of the sixteenth century, speaks of it as the place where invalids might best find a delightful situation, with the advantage of good lodgings, provisions, and company. In the *Dictionnaire* of Expilly, the population is stated at 4000: in the census of 1st January, 1832, the number of inhabitants is given at 7586 for the commune, of whom 5633 were in the town. The visiters are estimated by some at 16,000 or 18,000 yearly, of whom 6000 can be accommodated at one time.

Some manufactures of woollen stuffs of different kinds and of good qualities, serges, crapes, and other fabrics, are carried on here; some paper is also made.

The baths were known to the Romans, by whom the inhabitants were called Aquenses, whence the name of *Aquensis Vicus* is supposed to have been given to the town. It has been thought by some to have been the *Aquæ Convenarum* of the Romans; but D'Anville is not of this opinion. There are the remains of a Roman camp at Pouzac.

Bagnères is now the seat of a sub-prefect, whose arrondissement comprehends 770 square miles, with a population, in 1832, of 89,224.

* The *Voyage dans les Départements du Midi de la France, par* Aubin Louis Millin, enumerates, among other places of amusement, *une espèce de Vauxhall*. Perhaps this is the establishment of Frascati mentioned above.

The mountains round Bagnères are composed of a species of ordinary marble or gray fine-grained limestone, of which the houses are built. The rocks about the baths *du Salut*, which, as mentioned above, are a little distant from the town, are calcareous and schistose: cubical pyrites may be found dispersed in the limestone and the slate. A little to the north of the town the hills are argillaceous; beds of gray slate and slate partaking in a degree of the nature of mica-slate (*schiste un peu micacé*) are also found there, and at last the gray marble re-appears. Vertical and inclined beds of gray slate, and beds of gray marble, are found between Bagnères and the baths *du Salut*, or in the neighbourhood of the latter: and about a mile from the town white marble, which bears a fine polish, has been discovered.

There is a remarkable cavern, called the Grotto of Beda, in the limestone-hill, at the foot of which Bagnères lies. (*Encycloped. Méthodique*; Malte Brun; Millin, *Voyage dans les Départ. du Midi de la France*.)

BAGNÈRES-DE-LUCHON is a bathing town in the department of Haute Garonne (Upper Garonne), and is distant from Paris 513 miles S. by W. through Orleans, Cahors, and Toulouse, from which last town it is distant 75 miles S.S.W. 42° 47′ N. lat., 0° 34′ E. long. from Greenwich.

Bagnères is at the junction of the fertile valleys of Luchon and Larboust, from the former of which it gets the appendage to its name by which it is distinguished from the Bagnères de Bigorre. For a long time it was recommended by the cheapness of provisions and lodging, consequent upon its being less frequented by the wealthy than the other town. Early in the present century a splendid bathing establishment was commenced; and the town appears to be now increasing every year. It is in the form of a triangle, each corner of which is prolonged by an avenue of trees: one, composed of plane-trees, leads to the valley of Luchon; the second, of sycamores, runs up the valley of Larboust; and the third, composed of two rows of lime-trees, ascends the valley of the Pique, a small stream (a branch of the Garonne) upon which Bagnères is situated. This last, which is the most to the northward, is skirted by well-built houses, and leads to the bath-rooms, which have the appearance of a modern chateau, and are among the handsomest edifices of their class. There are twelve springs; the waters, which are sulphureous, are commonly arranged in three classes, the hot, the tepid, and the cold. They are diuretic, and of great efficacy in cutaneous diseases, especially the ring-worm (*les dartres*). They rise from beds of hard slate, between blocks of granite, and are conducted under ground into reservoirs, lined at the bottom with small slabs of slate. The smell of the water is like that of rotten eggs; they have a flat taste, and though transparent when they flow from the springs, they assume a milky appearance under the influence of air, light, and heat. These waters appear to have been used by the Romans, and some relics of their baths have given to one of the springs the name of *the Romans' Spring*: some contend for its being the *Aquæ Convenarum* of the Itinerary of Antoninus. (Martinière, *Le Grand Dictionnaire*.)

There is a mine of lead and pyrites in the immediate vicinity of Bagnères. At the hospital is a bed of clay-slate, in which the inhabitants of the place have opened a quarry. The mountains to the south are for the most part composed, to their loftiest summits, of gray marble.

The valley of Luchon, near Bagnères, is wide, and divided into pasture and arable land, which often yields two harvests in a year. A great quantity of large cattle and many goats are fed in the environs. The view of the summit of Maladetta on the Spanish territory, and the cascades formed by the mountain torrents, give great interest to the surrounding country.

The population of the commune of Bagnères was almost 2000 in 1826: we have no means of ascertaining what it was in 1832. The inhabitants of the neighbourhood are liable to be affected with the *goître*; but the number of these unhappy and ill-used beings is diminishing yearly, under the influence of increasing comfort and neatness.

BAGNES, VAL DE, is a valley in Switzerland, embosomed in the highest range of the Alps, which divides the canton of Wallis from the territories of the King of Sardinia in northern Italy. It extends on both sides of the river Dranse to the ridge of snow-covered peaks which unite the mountain-masses of Mount Combin and Mount Cervin,

and opens, at its lower extremity, into the valley of the Rhone, in the neighbourhood of the town of Martigny. From Martigny this valley runs for about five miles nearly due south to St. Branchier, where it turns to the east, and continues in that direction to the Getroz glacier; farther upwards it declines one or two points to the south. The whole length of this valley cannot be less than thirty miles, and its breadth, in the lower parts, is often more than two miles; but above the Getroz glacier it is much narrower. A part of the latter district is covered by the extensive ice-masses of the Chermontane glacier, in which the river Dranse rises. This valley is remarkable for its rapid ascent. Martigny is only 1603 feet above the sea, but St. Branchier is 2457. From St. Branchier to the village of Bagnes it continues to rise with equal rapidity, but farther upward the ascent is much more gentle. The differences of elevation, which are the consequence of this rapid ascent, account for the differences of climate and products in the different districts. The climate of Martigny approaches that of Italy, and is favourable to the growth of all kinds of fruits, especially of chestnuts and vines; the wine made here is much prized, particularly that of Coquempin and de la Margne. At Bagnes, grain is raised with difficulty; the upper valley is too cold for agricultural purposes, and only adapted for rearing cattle; the cheese made here is in great demand in the neighbouring countries. The inhabitants of this valley, who, with the exception of Martigny, may amount to about four thousand, are distinguished by their industry. The mountains which enclose the valley contain many kinds of minerals, and it is said that in the fifteenth century silver was worked here.

This valley has, in our times, become better known owing to an event which was destructive of life and property, but threw some light on the formation of new glaciers, and the consequences to be dreaded from such an operation of nature. The Getroz glacier occupies the upper part of a mountain called Mauvoisin, which terminates at a short distance from the river Dranse in a nearly perpendicular rock, about five hundred feet high. On the opposite side of the river stands another high mountain called Pleureur; the gorge formed by both mountains may be about half a mile wide. In 1811 the masses of ice, and the avalanches falling down from the glacier on the steep side of the Mauvoisin were of such a size that the summer heat did not dissolve them, and consequently a glacier was formed in the gorge itself. This glacier increased every year, and in 1817 it occupied even the bed of the rivulet, —for such only the Dranse is at this spot, and stopped its course. The consequence was, that a lake began to form behind the ice barrier, which was fifty feet deep, but no danger was apprehended when it was observed that the water of the lake was discharged by an opening under the glacier. This opening was unfortunately shut up by the ice in 1818, and the lake behind the ice barrier soon increased to eight thousand feet in length, and more than two hundred feet in depth. The ice-barrier itself, which prevented the water of the lake from running off, was five hundred feet long, about one thousand feet broad, and where lowest, upward of two hundred and twenty feet above the surface of the lake. The water, however, receiving supplies from the melting snow of the Chermontane glacier, increased rapidly, and from the 14th to the 24th of May the surface of the lake rose nearly twenty-three feet. The inhabitants of the lower valley began now to be aware of their danger, if the ice-barrier should give way to the pressure of the water behind. They recollected that, in 1545, a similar event had laid waste the whole valley, and drowned the village of Bagnes with one hundred and forty persons. They accordingly applied to the government of the canton, and suitable measures were immediately taken to prevent such a misfortune. A horizontal gallery was cut into the ice barrier, six hundred feet long, and fifty feet above the surface of the lake. It was thought that this elevation above the water was sufficient to allow time to finish the work before the lake could attain this height. When finished, it was supposed that the new supplies of water would be carried off by this gallery, and that afterwards the water itself would dissolve the ice over which it ran, and by thus gradually deepening the cut, would also lower the surface of the lake. The operation was difficult and even dangerous, but as the danger was imminent, the work was pursued with great activity. The cut was finished on the 13th of June. No sooner was it terminated than the water, which in the mean time had risen to the level of the cut, began to flow off through it, and all danger seemed to be averted. On the 16th of the same month, the water of the lake had already sunk forty feet, and the cut had been considerably deepened by its rush. But on the same day the water opened another road near Mount Mauvoisin, at a place where the glacier rested on some loose pieces of rock, which not being able to withstand the pressure of the water, suddenly gave way. An enormous mass of water, which, according to the public accounts, amounted to five hundred and thirty thousand cubic fathoms, rushed at once into the lower valley. In less than half an hour, it had overwhelmed the village of Bagnes, and in a still shorter period it arrived from Bagnes at Martigny. Although signals were immediately made to acquaint the inhabitants with this event, about fifty persons lost their lives. Not only houses and barns were carried away, but even extensive forests, and in some places the soil lying upon the rocks, was entirely washed off, so that nothing remained but the bare rocks. The damage was very great, and estimated at upwards of 1,100,000 francs in the districts of Bagnes, St. Branchier, Bouvernier, and Martigny. It was a happy circumstance that the water of the Rhone was uncommonly low, so that the bed of the river was capable of containing the whole mass of the water and carrying it to the lake of Geneva; otherwise the inundation of this other valley would considerably have increased the loss of property. It is the general opinion that this calamity would have taken place if the cut had not been made through the ice-barrier: for a mass of water, twice or thrice as large, would have collected behind it if the cut had not been made. The glacier standing in the gorge was not removed by the rush of the waters, and it was feared that if its removal could not be effected, the valley would often be exposed to similar catastrophes. This gave rise to a plan of removing it by the labour of men. For that purpose water was brought by wooden pipes resting on frames to the surface of the glacier, and there conducted into canals cut into the ice. The water thus running in the canals by degrees dissolved the ice that forms their bottom, and they grow deeper and deeper; when they attain such a depth as to approach the surface of the ground, an immense block of ice is broken off and precipitated into the river. Several enormous pieces have in this manner already been removed. On the 15th of June, 1822, an enormous block, containing five hundred thousand cubic feet of ice, was detached from the glacier; the waters of the Dranse, and even of the Rhone, up to the place where it enters the lake of Geneva, were rendered cold to a great degree by it. Of the present state of the glacier no account has reached us. (Glutz, Blotzheim, and Schoch.)

BA'GNIO, a word derived from the Italian *bagno*, which means a bath, and also a bathing-house. It has been applied, by the Europeans trading with the Levant, to the prisons in which the slaves or convicts who are made to work in the docks, and at other public works, in Constantinople, Algiers, and other cities of Turkey or Barbary, are shut up for the night. The French likewise call *bagne* the house of detention, where they keep their galley-slaves at Toulon and Brest. Bagnio, in English, has been used as synonymous with brothel.

BAGNOLS, a town in the department of Gard, in France, on the south or right bank of the river Ceze, a feeder of the Rhone, and on the road from Paris to Nîmes, 414 miles S.S.E. of the former, about 36 miles N.N.E. of the latter. It is in a fine country, about four or five miles from the banks of the Rhone. 44° 9′ N. lat., 4° 35′ E. long. from Greenwich.

The town is ill-built, and the streets are narrow; but it has a *place*, or open space, one of the handsomest in that part of France, surrounded by arcades, and adorned by a fountain. The Ceze brings down particles of gold in its stream; but it contributes more to the wealth of the town by turning several silk-mills, which have been erected on it. A great quantity of silk is wound off from the cocoons in the neighbourhood of this town, and a considerable quantity of *étoffes de fantaisie*, or fabrics made of the refuse silk, are woven here. It is supposed that the Romans had baths here, and the supposition is confirmed by some antient monuments which have been found from time to time. The population of the commune in 1832 was 4902, of whom 3600 were in the town. There are a high-school and an hospital. There are in Bagnols two springs, so abundant

that the water is conveyed out of the town by a canal, and serves for watering the neighbouring lands.

There are several small places in France of this name At Bagnols, not far from Domfront, in the department of Orne, are celebrated mineral waters, tepid and sulphureous, recommended for cases of palsy following an attack of apoplexy. It is a mere hamlet of seven or eight houses, forming the bathing establishment. There is an hospital for the working class and the soldiery, who are supported while here by the Government.

There are mineral waters also of considerable local reputation at Bagnols-les-Bains, in the department of Lozère, about five miles east of Mende, the capital they excite the appetite and promote perspiration. Bagnols les Bains is in 44° 30′ N lat., and 3° 38′ E. long from Greenwich

BAGNORE'A, a town in the Papal State, and a bishop's see, with a population of 1700 inhabitants. It is situated on the ridge of calcareous hills which divides the lake of Bolsena from the valley of the Tiber. The antient Balneum Regium was one mile distant, at a spot now called Civita it was placed on the pinnacle of a limestone rock, joined to the surrounding country by a narrow neck of land. This approach has been gradually worn out by the rains, and one portion of it having entirely given way, the rock is now isolated

In consequence of this, the inhabitants removed about a century since to the new town At Civita, there are, lying in front of the old cathedral, several marble pillars, which have evidently belonged to some temple A fine Etruscan urn, with a beautiful basso rilievo, representing two antient bigæ with their horses and a number of figures crowding after them, the whole in an excellent state of preservation has been transferred to the bishop's palace at Bagnorea (Review of Cramer's *Description of Antient Italy* in *Journal of Education*, No XIV.) Bagnorea is eight miles N N E of Montefiascone, and six miles S of Orvieto, and three miles distant from the high road from Rome to Florence The old Bagnorea, or Balneum Regium was the birthplace of St Bonaventura, a distinguished theological writer of the thirteenth century and a cardinal who exercised much influence on church affairs in his time

BAGO'US, in entomology, a genus of the order *Coleoptera*, and family *Curculionidæ* The little beetles composing this genus are all of a mud colour, and feed upon aquatic plants, probably both in the larva and imago states. There are six or eight species found in England

BAGPIPE, a musical instrument of the pneumatic kind, still well known, though fast falling into disuse, and which probably will, in a few years, be banished from all parts of our island, except the most remote and least advanced in taste It is described by Grassineau as consisting of a leathern bag, inflated by a port-vent fixed in it, which has a valve, and of three pipes, the first and second called the great and little *drone*, each giving but one note, the third, a kind of oboe having eight ventages, or holes, on which the tune is played by the fingers The wind is communicated to the pipes by compressing the bag under the arm, the mouth-piece of each pipe being fixed in the bag. The compass of this instrument is three octaves

The *bagpipe*, or something nearly similar to it, was in use among the antients Blanchinus gives a figure of it under the name of *tibia utricularis*, though this is not precisely the same as the modern instrument. Luscinius, in his *Musurgia* (1536), has a wood-cut of it, whence it appears that the bagpipe in his time was in all respects the same as ours. Indeed, it is mentioned, though not described, by Chaucer, who says of his miller—

'A baggepipe wel coude he blowe and soune,'

and this, we are told in the same prologue, was the music to which the Canterbury pilgrims performed their journey

Bagpipe seems a translation of the German *Sackpfeife*. By the Italians it is called *Cornamusa;* by the French, *Musette*, not *Chalumeau*, as Dr. Burney states; the latter signifying a single pipe of the simplest kind.

BA'GRADAS. [See MEJERDAH.]

BAHA'MAS, or **LUCA'YOS**, are a chain of low islands stretching in a north-westerly direction from the north side of St Domingo to the coast of East Florida. It is composed of innumerable rocks, islets (called keys), and islands, of which not more than twelve or fourteen are inhabited: these are New Providence, Turk's Island, Eleuthera, Exuma, Harbour Island, Crooked Island, Long Island, St. Salvador, Caycos, Watling's Island, Rum Key, and Heneagua. Some of the largest islands, as Great Bahama and Lucayo, now called Abaco, with many smaller ones, remain without inhabitants St Salvador, called by the Indians Guanahani, was the first land fallen in with by Columbus on his first voyage in 1492.

When the Bahamas were first discovered, they were peopled by a numerous, mild, and happy race of Indians; however, as the islands produced no gold, the Spaniards did not form any settlements on them, but carried the natives over to Hispaniola to work the mines, or act as divers in the pearl-fisheries of Cumana, and thus, in about fourteen years, the whole race became entirely extinct. Some stone hatchets and domestic utensils of the aborigines are occasionally found in the islands

The Bahamas remained uninhabited till the year 1629, when New Providence was settled by the English, who held it till 1641, and were then expelled by the Spaniards, who destroyed the colony, but made no attempt to settle there themselves It was again colonized by the English in 1666, and continued in their hands till 1703, when a combined force of French and Spaniards destroyed Nassau, and obliged the inhabitants to seek refuge by flight Some, however, who remained were rendered desperate by their recent sufferings, and the place became a rendezvous for pirates, who became so notorious, and committed such depredations in the adjacent seas, that government determined to suppress them, and re settle the colony This took place in 1718, and shortly afterwards settlements were formed on some of the other islands Nassau itself (the town of New Providence) was fortified in 1710

The Bahamas now enjoyed tranquillity till the commencement of the American revolutionary war when New Providence was taken possession of by the Americans (1776), but they abandoned it very shortly afterwards In 1781 all the Bahamas were reduced by the Spaniards, but, by the treaty of peace in 1783 they were again restored to the British crown At the close of the American war, many of the royalists transferred the remains of their property to these islands, and since that period the number of the people and the cultivation of the land have progressively increased. To encourage commerce, Nassau was declared a free port in 1787, this town is the centre of trade, but there are three other regular ports of entry—Exuma, Caycos, and Turk's Island.

Nassau is also the seat of government, which is similar to that of most other British West India islands there is a governor and council appointed by the Crown, and a House of Assembly, or representatives of the people The governor is the principal executive authority, is commander in-chief of the militia, and has the power of summoning and dissolving the legislative body or of putting a negative on its proceedings The council is composed of twelve members, and is equivalent to the House of Peers in England The House of Assembly (similar to the Commons) consists of the representatives of the several islands, in number between twenty and thirty the necessary qualification for this office is, property to the value of *2000l.* currency, or 200 acres of cultivated land The electors are all free white persons, above twenty-one years of age, who have resided twelve months in the colony Besides the courts of chancery and errors, there is the supreme court, an inferior court of common pleas, and a vice admiralty court. A chamber of commerce has also been established at Nassau, which serves as a court of arbitration for salvage on property saved by vessels of the islands, each party giving bond to abide by the arbitrament made

The principal islands are situated on those remarkable flats called the Bahama Banks, of which the Great Bank (lying at the western extremity of the archipelago) occupies an extent of 300 miles in length N W. and S E, and 80 in breadth; the deepest water on any part of this bank is thirty feet, but the patches of coral rock and dry sand are innumerable These banks rise almost perpendicularly from an unfathomable depth of water, and are formed of coral, with an accumulation of shells and calcareous sand The character of the islands is generally long and narrow, low, and covered with a light sandy soil, their figure and surface throughout being nearly the same. At the greatest depth yet reached by digging, nothing has been found but calcareous rock, with an intermixture of shells Those islands not situated on the bank have a reef of rocks extending a short distance from the shore, forming the boundary

of soundings, immediately outside which the sea is often unfathomable.

The climate is temperate and healthy, the summer range of the thermometer is from 80° to 90° Fahrenheit, and in winter from 60° to 65°. The north-east trade-wind prevails throughout the year, with the exception of the winter months, from November to March, when strong gales frequently blow from the north-west Thunder-storms are violent and frequent, and earthquakes are sometimes felt. There are no streams or rivers, but water is easily procured by digging The soil is dry and hard, but the islands are generally fruitful, and produce several species of trees, as mahogany, satinwood, lignum vitæ, cedars, pines, brazilletto, wild cinnamon, fustic, and pimento, with a great variety of esculent vegetables Cattle are reared in great plenty, and in the woods are found the wild hog and the agouti

The following is the latest statistical account of the Bahamas for 1831, as laid before Parliament, according to the *Statistical Tables compiled under the direction of the Board of Trade* —

Revenue	. . . .	£22,399
Expenditure	. . . .	46,333
Value of imports	. . .	91,561
Ditto exports	. .	71,658
Shipping inwards, No 466	.	48,765 tons
Ditto outwards, No 499	.	54,264 —
Population, whites and free coloured	.	3,368 males
Ditto ditto ditto		3,863 females
Ditto slaves	. .	4,727 males
Ditto ditto	. . .	4,830 females
Total population	. .	16,788

The islands are divided into ten parishes there are forty one places of worship, capable of containing 4890 souls, seven schools, in which 458 children of both sexes and in about equal numbers are taught, and one prison The chief articles of export are cotton, dyewoods, bark, fustic, salt, with turtle and fruits The crops of cotton are often destroyed by the chenille and red bug, the latter stains the cotton so as to render it of little value The cultivation of cotton is no longer the staple The total export of this article in 1831 was 69 bales Altogether the exports of the Bahamas are very trifling Not more than 600 tons annually, 560 of which consist of Brazilletto wood and fustic Great numbers of pine apples are grown for sale principally to North American traders In 1831, 38,165 dozens were thus raised. The islands generally produce sufficient maize and ground provisions for the use of the inhabitants Turks Islands afford the principal supply of salt, from one to two thousand 'rakers visit them annually, beginning their operations in February A large portion of the inhabitants of the Bahamas derive considerable profit from giving assistance to vessels involved in the inextricable labyrinth of their innumerable rocks and shoals, and in danger of being wrecked, or by saving lives and property from those already wrecked, whence they have obtained the name of wreckers They are licensed by the government, and a legal salvage is allowed on property recovered by them This is the principal trade now carried on in the Bahamas

The people of the Bahamas appear to have but little attachment to their native soil, which arises probably from their having so little solid local interest in the town of Nassau only are there buildings of any value From the necessity which the planters are frequently under of shifting from one tract to another, their dwelling-houses are mere negro huts upon a larger scale, and sometimes even are furnished by the hands of the same rude artists

The English packet on her way home from Jamaica always calls at Crooked Island to drop and receive the Bahama mails.

The rise and fall of tide varies from three to six feet in the different harbours, and the time of high water, full and change, from 7h. 30m. to 9h 30m. A.M The velocity of the Gulf Stream is at its maximum between the Bahamas and the Florida shore, running at the rate of five to six miles an hour.

The whole group is contained between the parallels of 20° and 27° 40′ N., and the meridians of 68° 40′ and 79° 20′ W. of Greenwich.

(Bryan Edwards's *Hist. of West Indies; Colombian Navigator.*)

BAHAR, a very extensive province of Hindustan, considered to be the second in importance among the British possessions in India, is situated between 22° and 27° N lat it is computed to contain about 50,000 square miles Bahar is bounded on the north by Nepal, on the east by Bengal, on the south by Gundwana, and on the west by Allahabad, Oude, and Gundwana

Bahar, together with Bengal, was added to the Mohammedan dominions in the beginning of the thirteenth century by Cuttub, a native of Turkistan, who, having been originally the slave, became the favourite general, and afterwards the adopted son and successor, of Mohammed, the founder of the Afghaun or Patan dynasty in India. In 1530 Bahar was conquered by Baber, the grandfather of Akbar, and with him began the dynasty of the Moguls in Hindustan, which continued until the establishment of the British empire This extensive district, together with the provinces of Bengal and Orissa, came into possession of the British East India Company on the 12th of August, 1765, and were conveyed by firmaun from the Mogul Shah Allum The imperial grant thus acquired is distinguished in the annals of the Company as 'the Dewanny, or collection and receipt of the revenues in Bengal, Bahar, and Orissa, and its acquisition laid the foundation of the political power of the English in India It is not to be imagined that so vast an extent of territory was ceded voluntarily on the part of the Mogul That sovereign had been previously brought so far within the power of the Company as to be compelled to agree to any conditions, however arbitrary, that the British might impose In return for the princely dominion thus ceded, the Mogul was assured the annual payment of twenty six lacks of rupees, equal to about 300,000*l* sterling money, as a quit rent

By this change of masters, however brought about the inhabitants of Bahar have undoubtedly been considerable gainers They have acquired the quiet and permanent possession of their farms, and have enjoyed an exemption from the evils of war Under these circumstances the number of inhabitants has very greatly increased, and the cultivation of the soil has been proportionally extended The population of the province as taken from the returns of the magistrates and collectors of the various districts in the beginning of the present century, amounted to 10,974,000 souls

Bahar may be pronounced one of the most fertile, best cultivated and most populous districts in Hindustan It has the advantage of a temperate climate is well watered, is provided with easy internal communications, and has the further advantage of being a thoroughfare for the commerce of Bengal with the upper provinces

The province may be considered as divided into three districts The first and second of these divisions consist almost entirely of a level plain containing about 26,000 square miles of fertile and highly cultivated land These two divisions are separated by the Ganges, which runs with an easterly course for 200 miles through the province The plain on the north of this stream extends for 70 miles to the forests of Nepal and Morung, and is separated from Goruckpoor, in the province of Oude, by the river Gandaki, and from Purneah, in Bengal, by the Cosi. The second district extends from the south bank of the Ganges, and is separated from Allahabad on the west by the river Caramnassa, which Major Rennell supposes to be the Commenases of Arrian (*Indica* 4) On the east, this second division extends to the confines of Rajmahal, where it meets a branch of the southern hills in Bengal, near to the pass of Tellinghurry. The third district, which comprises nearly 20,000 square miles, is composed of high and rugged hills, and is bounded on the west by Allahabad and Gundwana; on the south by Gundwana and Orissa; on the east by Bengal, and on the north by the zillah, or district of Bahar. This hilly tract is subdivided into three *belads* named Palaman, Ramghur, and Chuta Nagpore (Little Nagpore). The whole division sometimes goes by the name of Nagpore.

In the plains, a hot parching wind from the west prevails during a great portion of the hot season, and blows strongly during the day; but at night the air is commonly tempered by a cool breeze from the opposite direction. This parching wind is not constant, but sometimes ceases for weeks together. During the cold season, frost is sometimes experienced among the hills, the air of which is considered to be bracing to the constitutions of Europeans who have been enfeebled by the continued heat of other districts. During

this cold season the thermometer at sunrise frequently stands as low as 35° to 40° of Fahrenheit's scale, but in the afternoon rises to 70°.

The province of Bahar is divided into six zillahs or districts, viz., Boglipore, Bahar, Tirhoot, Sarun (the asylum); which district of Sarun comprehends Bettiah or Chumparun, formerly a separate district: Shahabad (the royal residence), and Ramghur (the house of Rama).

The principal rivers of Bahar are the Ganges, the Sone, the Gandaki, the Caramnassa, the Dummodah, and the Dewah. Besides these, there are a great number of smaller streams. The tracts south of the Ganges are not so well supplied with water as the country north of that river, and the artificial means of irrigation common in the East, such as wells and tanks, are provided as necessary substitutes.

A large quantity of saltpetre is produced in Bahar, principally in the divisions of Hadjypoor and Sarun, whence the greater part of that article intended for the Company's purchase has been procured. This article of commerce is produced in artificial beds, consisting of the refuse of vegetable and animal matters in a state of decomposition, mixed with calcareous and other earths. It is believed that the hot, dry wind which prevails in those parts for a considerable portion of the year is essential to the formation of the nitre. The oxygen and azote which enter into the composition of this salt are supplied by the air and the putrefying organic substances; but how the potass which it contains is developed has hitherto remained undiscovered. The manufacture of cotton cloths is general throughout the province.

Opium is produced very abundantly and of excellent quality in all the districts of the province. This drug is strictly monopolised by the Company's government, and the cultivators of the poppy are in consequence placed under very strict regulations. Wheat, barley, and rice of excellent quality, sugar, indigo, betel-nuts, and essences, particularly the attar of roses, are among the ordinary productions of the province.

The inhabitants of Bahar, particularly in the upper part of the province, are superior in size and strength to their neighbours, the Bengalese; from one-fourth to about one-third of them are Mohammedans, and the remainder Hindus. The birth-place of Buddha is within the province, and, previously to the Mohammedan conquest, the Buddhist religion was professed by the chiefs; but this system of faith has since been completely eradicated from among them. Intoxication, by means both of fermented liquors and drugs, is very common, especially in the hilly districts; cleanliness is not to be numbered among their virtues, the filthiness of their villages being excessive.

It is traditionally believed that, previous to the Mohammedan invasion of Bahar, this province formed two independent sovereignties, the northern division bearing the name of Mithila, and the southern that of Magadha. The language of these two divisions consists of different dialects to the present day; both have a great affinity in the form of the characters and in many of their terms with the Bengalee: this resemblance is greatest in the south.

(Mill's *History of British India*; *Ayeen Akbery*; Rennell's *Memoir of a Map of Hindustan*; *Reports of Committees of the House of Commons on the Affairs of India*.)

BAHAR, a zillah or district of Hindustan, occupying the southern part of the central portion of the province just described. This district is bounded on the north by the Ganges, on the east by the district of Boglipore, on the south by Ramghur and Boglipore, and on the west by Shahabad. The southern boundary has been but ill defined. The extreme length of the district, from east to west, is 120 miles, and its greatest breadth, from north to south, is 80 miles; its superficial extent is 5358 square miles.

The district of Bahar is for the greatest part a level plain throughout, but interspersed with rugged, barren, naked, and, for the most part, isolated hills. About the centre of the district are three remarkable clusters of hills. One of these clusters, the Berabur Pahur, is on the west side of the river Phalgu; another, the Rajagriha, is on the east side of that river; and the third, which is a long narrow ridge, is adjacent to Sheikhpoorah. The elevation of these hills is not considerable, the highest being not more than 700 feet. Towards the southern boundary of the district is a portion of the Vindhyan chain of mountains, by which the great Gangetic plain is bounded on the south, and which, commencing in the province of Bahar, extends to Ramisseram, in the straits of Ceylon, near to Cape Comorin. These hills are double the height of those already described. The hills in this district do not any where approach the Ganges.

The Ganges is generally a mile wide in this district, and is not any where fordable within its limits. In addition to this stream, the district is watered by the Sone, the Punpun, the Phalgu or Fulgo, the Sacri, and the Panchane, with their numerous branches. The Sone, or Golden River, rises on the east side of the province of Gundwana, and flows to the N. E. through Allahabad, where it is joined by other streams; taking then a more northern direction, it joins the Ganges three miles below the town of Moneah in this district. The channel of the Sone, in the province of Bahar, is celebrated for containing beautiful pebbles, which take a high polish. These pebbles are probably brought from the southern hills by the rapidity of the stream. The river likewise contains excellent fish, including several kinds of carp. After heavy rains the rapidity of the current is unfavourable to navigation; but, at other times, boats of considerable size pass in a direct line for about fifty-five miles between the districts of Bahar and Shahabad. This river and the Nerbudda derive their common source from a lake, and, flowing in opposite directions for 1500 miles, make, conjointly with the Ganges, an island of the southern part of Hindustan.

The climate is considered to be generally healthy. In spring, the heat is very great, and is, in some places, increased by the reflection of the sun from the sands in the beds of rivers, or from naked rocks. In the winter, the natives generally kindle fires in their sleeping apartments, although frosts are rare. This district produces excellent wheat, barley, and rice: the rice is much esteemed, and is in great request in the markets of Calcutta. The cultivation of cotton is not of sufficient amount for the employment of the native looms, and the deficiency is supplied from the west. Tobacco and indigo are also raised, but not in any considerable quantities. The rent paid for land is high, usually amounting to one-half its produce, yet the cultivators are generally comfortable. When first it came into the possession of the British, the greatest part of this district was in a wild uncultivated condition, and the inhabitants, particularly in the southern part, were a prey to internal dissensions. Now the plains are universally cultivated to the very bases of the hills; but the greater part of the hills themselves are utterly unfit for any kind of tillage. A great portion of the lands in the vicinity of the Ganges give two annual crops.

Nearly one-third of the lands in this district is exempted from the payment of rent, yet it is observed that the state of cultivation of this portion is by no means so good as of that which is subjected to the land-tax, an effect which may perhaps be referred to the established custom of succession, which causes these rent-free estates to be parcelled out into petty holdings. In this state of things, the majority of the zemindars are reduced to the condition of peasants, and are but little removed from a state of beggary. The generality of the cultivators who contribute to the land revenue, and who are under a different law or custom of inheritance, are, on the contrary, in very good circumstances.

The winds blow almost constantly either from the east or the west. From the middle of January to the end of March the west wind prevails; from that time to the middle of June, the wind varies from east to west, the duration being nearly equal from each quarter; thence to the end of July, the wind is constantly from the east, when it changes again, and blows from the west until the end of August. From that time until the end of October, it again shifts to the east, and thence to the middle of January the winds blow from the west or the east for nearly equal periods. Of course this order is liable to occasional irregularity; but taking one year with another, the statement may be considered correct.

The principal towns in the district are Patna (*Padmâva'i*, the lotus-bearing), the capital of the province; Gaya, the capital of the district; and Dinapoor. The villages are exceedingly numerous and consist of mud-built houses, huddled together, without regard to comfort or ventilation. The population was estimated in 1811 by Dr. Francis Buchanan (Hamilton) at 2,755,150 persons, of whom 724,159 were Mohammedans and 2,030,991 Hindus.

There are six places of pilgrimage in the district; these are, Gaya, Rajagripa, Baikuntha, the river Punpun, Lohadanda, and Chyaban Muni. The first four are much fre-

quented, particularly Gaya, which, as the birth-place of Buddha, is held in great veneration by Buddhists, while it is considered sacred by the Hindus, as having been the scene of one of Vishnu's victories which he gained over a giant. The government derives a revenue from pilgrims who frequent these holy places, by which means their numbers are known; 200,000 persons have been taxed in a year, as pilgrim-visiters at Gaya.

The marriage ceremony takes place at an early age in Bahar, but the wife does not enter her husband's house until she has reached the year of maturity, when she is conducted to it with great ceremonies. Widows have been allowed the privilege of burning themselves when they receive the account of their husband's death, even although this should happen at a distance; in the adjoining province of Bengal this act of self-devotion has not been permitted unless in presence of the corpse. The inhabitants of Bahar differ also from their neighbours in not considering it necessary to place the feet of dying persons in the sacred river. Poor and ignorant persons are here left to die in their own houses, but the religious feelings of people of rank and education lead them to turn their relations out of doors when they appear about to die. Placing the sufferer then upon a mat, he is exposed to every inclemency of the weather; some sacred herb or stone is placed near his body, and prayers are repeated until he dies. In some cases, and when the circumstances of the dying person admit of it, he takes into his hands the tail of a cow, and makes an offering of the animal to the Brahmins. The better feelings of our nature have so far overcome religious injunctions in these cases that the natives have acquired great skill in observing the symptoms of approaching dissolution, so that the dying man is seldom exposed in the manner here described till sensation is deadened or has ceased.

Leprosy is of common occurrence here, and the prejudice against persons seized with this malady is so great, that it is not uncommon for them to be taken to the middle of the Ganges in a boat, and to be there cast into the stream with a pot of sand tied round the neck. Nor do the sufferers object to this proceeding. Being helpless and miserable outcasts, they have little to render life desirable, and they are besides taught to believe that the sin for the commission of which the disease is inflicted, can be expiated only by dying in the sacred stream.

(Rennell's *Memoir of a Map of Hindustan*; Dr. Hamilton's *Statistical Survey of Bahar*; *Reports of Committees of the House of Commons on the Affairs of India*.)

BAHAR, a town in the province and district of the same name, which was, in all probability, once the capital of both; but has since been superseded as to the province by Patna, and as to the district by Gaya. The town of Bahar is situated in 25° 13′ N. lat., and 85° 35′ E. long. It is, in its present condition, a large straggling place, whose buildings surround a ditch which formed the boundary of the antient city, now nearly deserted. Here are the remains of a heavy building of stone, covered by several diminutive domes; the interior is divided into as many cells, resembling the antient mosques in the upper provinces of Hindustan. The best part of the town consists of a long but narrow street, paved irregularly with bricks and stones. The place altogether contains about 5000 houses, but is politically of little or no importance. The surrounding country is well cultivated, and improved by artificial irrigation. Bahar is 35 miles from Patna, 297 from Calcutta, and 612 from Delhi.

(Dr. Hamilton's *Statistical Survey of the District of Bahar*; Hamilton's *East India Gazetteer*.)

BAHAWULPOOR, an extensive division of the province of Mooltan in Hindustan, 280 miles long, from north-east to south-west, and 120 miles broad. This territory was, until 1811, tributary to the Afghan government, which, however, did not in any way interfere with the proceedings of the immediate ruler of the division, Bahawul Khan. At his death, which took place in the year just mentioned, Runjeet Singh, Rajah of Lahore, taking advantage of the inferior abilities of the son and successor of Bahawul Khan, seized upon the territory, and has since possessed it in full sovereignty.

Bahawulpoor is watered by the rivers of the Punjab, by which term is comprehended the country lying between the five streams tributary to the Indus, which join that river within the province of Mooltan. These five streams are the Jhylum or Hydaspes; the Chinaub or Acesines; the Ravee or Hydraotes; the Beyah or Hyphasis; and the Sutleje or Hesudrus. The soil on the banks of the rivers is very fertile; but westward of the Chinaub, and at some distance from that stream, the land is poor, while in the east part of the division it is perfectly sterile. In travelling towards the Rajpoot states, it is necessary to provide an establishment of camels, as in the deserts of Arábia. The rich land on the margins of the rivers is, for the most part, in a state of good cultivation; some spots are, however, uncleared, and covered with coppice of tamarisk trees. These places abound with wild hogs. Wild-geese, partridges, and hog-deer, are likewise plentiful, particularly on the banks of the Beyah.

The chief towns of this territory are Bahawulpoor, Amedpoor, Seedapoor, and Ooch. Bahawulpoor stands near the river Gurrah, which name is given to the united streams of the Beyah and Sutleje. Including its gardens, this town is four miles in circumference. The houses are built of unburned bricks with mud terraces. The camels bred here are much in demand, owing to their strength and fleetness.

The greater part of the inhabitants are Hindus; the rest are Juts and Balooches, both professing Mohammedanism. The manufactures carried on by them are of silken girdles and turbans, and some species of cotton cloths called coongees, which are celebrated for the fineness of their texture: the weavers are chiefly Hindus. The merchants of Bahawulpoor are also Hindus; they have a great deal of commercial enterprise, and deal extensively in goods of European manufacture, which they receive from Pallee in Marwar, by way of Bicaneer and the desert of Ajmeer, and convey them by land carriage through Mooltan and Lahore, crossing the Indus at Kaheree. These Bahawulpoor merchants often travel to Balk and Bokhara, and sometimes to Astrakhan, for commercial purposes. They take the route of Perawa (in Malwa), Cabul, and Bamian, and crossing the Oxus, exchange at Bokhara the productions of India for those of that quarter of Asia and of Russia which are brought to meet them by the traders of the latter country. Their manner of crossing the Oxus is to yoke horses to small boats, and then drive them across the stream. The Gurrah, on which the town of Bahawulpoor stands, is a navigable river, but is not used for the transport of merchandise, as it does not present any available line of route except to Sind, with which country there is no trade from the upper provinces of India.

The town of Bahawulpoor is in 29° 19′ N. lat., and 71° 29′ E. long.; it stands 62 miles south of the city of Mooltan.

(Rennell's *Memoir of a Map of Hindostan*; Elphinstone's *Embassy to Cabul*; *Report of a Committee of the House of Commons, in* 1832, *on the Affairs of India*.)

BAHIA. [See ALL SAINTS' BAY.]

BAHI'A, a province of Brazil, between 9° and 16° S. lat., and 36 and 43 W. long., and consequently within the tropics of the southern hemisphere. It extends from the most northern point, near Pambu on the river S. Francisco to the Rio de Belmonte, about 480 miles in length, and its average breadth certainly exceeds 200 miles. This would give to this country at least an area of 96,000 square miles, so that it would only fall short of the whole area of the British islands by about 20,000 miles. The statistical accounts, however, differ much in this respect. The surface of Bahia is commonly estimated at about 55,500 square miles; but a more modern account gives to it 96,750 square miles; and this, we think, approaches much nearer the truth.

On the east Bahia is washed by the Atlantic ocean; on the west, and in part on the north, it is divided from the province of Pernambuco, and its Sertão by the Rio St. Francisco. On the shores of the ocean these provinces are divided from one another by the small province of Seregipe, from which Bahia is separated by the little river Rio Real. On the south it is divided from Rio Janeiro by the intervening provinces, Espirito Santo and Minas Geraes, being separated from the former by the Rio de Belmonte, and from the latter chiefly by a range of mountains.

By far the greatest part of its surface is covered with mountains; plains only occur along the coast and on the banks of the Rio Francisco. The mountains of this province belong to that extensive system which commences in the south to the north of the lake Patos (Laguna de los Patos) in the province of Rio Grande do Sul, about 30° S. lat., and extends along the coast at a distance of from 20 to 160 miles to the most northern parts of the province of

Bahia, where it may be considered as terminating. The mountains which approach the sea farther to the north, belong to one of the chains which traverse the interior of Brazil, and not to the range which runs along the ocean, and is, for that reason, called by the Portuguese Serra do Mar (the Sea Range). The highest part of this mountain-chain lies to the west-north-west of Rio Janeiro, on the common boundary of the three provinces Minas Geraes, S. Paolo and Rio Janeiro, where some summits of this range, which here is called Serra de Mantiqueira, rise to between 8000 and 8500 feet above the sea. Farther to the north the mountains are less elevated; and in the province of Bahia the highest summits probably do not exceed 4000 feet. The whole chain in the southern district of this province is called Aimores, and in the northern Serra de Cincura. The former is higher, and contains near the boundary of Minas Geraes the Montes Altos (High Mountains). The watershed of this range lies in general parallel to the coast at a distance of about 150 miles, and about 50 from the banks of the Rio Francisco. But the offsets and branches from this boundary approach the sea within about twenty or thirty miles, and they advance still nearer to the river. They come nearest the sea to the south of the Rio de Contas, and to the west of the bay of Camamu. By this disposition of the lateral branches of the mountain-range, the level, and in some part hilly shores are connected on the west with long valleys, which commonly are of moderate width, and extend fifty miles and upwards into the interior, till they terminate in high open plains called sertões, on or near the summit of the range. It seems that at a distance of about fifteen to twenty-five or thirty miles, the whole country rises with a pretty rapid ascent: for about this distance all the rivers traversing the coast are full of cataracts and rapids, and become unfit for the purpose of navigation.

Bahia may, with respect to its climate and productions, be divided into three districts, of very unequal extent. The first comprehends the southern coast up to point Mutta, or the bay of Camamu, and the lower part of the contiguous valleys, to a distance of about ninety or one hundred miles from the sea. This district is called Beira-Mar. To the north of it lies the Reconcave, which extends round the Bahia de Todos os Santos, or All Saints' Bay, to Cape S. Antonio, and from twenty to thirty miles inland. To the west of both extend the sertões and mountains, and these comprehend also the high country which to the north of the Reconcave occupies both banks of the Rio Itapicura, and extends to the Rio S. Francisco, and the shores of the ocean.

Beira-Mar enjoys many advantages. It has abundance of running water, and commonly a fertile soil, there being, if the backs and sides of the mountains are excepted, scarcely any situation where mandioca, rice, Indian corn, the coffee-tree, the sugar-cane, and the cotton-plant do not prosper. But, on the other hand, heavy dews and almost incessant rain render it an unpleasant and unhealthy country. There is scarcely a distinction of seasons; the trees bear blossoms and fruits in all stages at the same time. The temperature of the winter is never cold enough to check vegetation, nor is the summer hot enough to call forth its full force, because the sky is commonly covered with clouds. The perpetual moisture occasions aguish diseases; and yet if there happens to be a fortnight of sunshine, the rich clayey soil is parched and cracks, and fine weather becomes a serious calamity. The unfavourable climate of this district is the cause of its having been neglected by the Portuguese, and containing so few settlements. The predominant race in the maritime towns, and even in the valleys, are the Mamalucos, of Tupininquin extraction; which nation was in possession of the country at the arrival of the Portuguese, but soon submitted to their dominion. There are few of pure European blood, and not many negroes, the intermediate breed of all shades far exceeding the unmixed races. There are, however, some pure Indians; and on the boundary of Minas Geraes there still exists the nation of the Mongoyos, which was converted to Christianity in the beginning of this century, and cultivates mandioca, several kinds of potatoes, with other roots, and also water-melons. They make also pottery, with which they supply the sertões of Pernambuco and Bahia; and in the Indian town of Olivença, a large and populous place, the people are almost all employed in works of turnery, of which some is annually exported. From the harbour of Rio de Contas mandioca and rice are sent to Bahia, the climate and soil of the district being very favourable to their growth, especially that of rice, which returns three hundred fold. So abundant is it that even the poultry and cattle are fed with it. But the greatest wealth of this country, of which the inhabitants have not yet availed themselves, consists in the immense woods which cover the plains, valleys, and mountains; the frequent rains further the growth of the trees, which again preserve the soil in a state of moisture.

Reconcave is properly only the country which extends round All Saints' Bay, but as the coast south of it to Point Mutta enjoys the same advantages of climate, agriculture, and commerce, we have included it in this district. The bay itself extends, according to Alcedo, twenty-seven miles from north to south, and twenty-seven miles in the widest part from east to west. Henderson says it is twenty-three miles long from north to south, computing from the point of St. Antonio to the mouth of the river Pitanga, and nearly thirty miles wide from east to west, which seems to be nearest the truth. Southey, in his history of Brazil, asserts that it extends both northward and westward a whole degree. This last is doubtless an exaggerated statement, which, however, as far as regards the length from north to south may be defended, if the whole coast to point Mutta is included. From this cape to the island of Itaparica, which forms the two entrances of All Saints' Bay, a series of islands extend, between which and the continent small vessels and barges may make their way to Bahia without entering the sea. Adjacent to Point Mutta, on the north, is the bay of Camamu, in which large vessels may enter and lie safe against all winds. This bay itself contains some islands, and to the north of it lies the island of Boypeba, of considerable extent, and farther north others of less importance. Then follows the island of Tinhare, which is eighteen miles long from north to south. Some smaller islands continue to the False Bar (Barra Falsa) or the western entrance of All Saints' Bay. This entrance is less than two miles wide at the narrowest point, and by it the numerous vessels and barges proceed from the bay of Camamu and the adjacent country to the town of Bahia. Foreign vessels enter All Saints' Bay by the eastern entrance, which is eight miles wide. Between both entrances lies the island of Itaparica, which is twenty-three miles long from north to south, and ten in the widest part. It is of irregular form, having a bay on the western side, and a large curving projection on the eastern, and its surface presents considerable inequalities. The soil of this island is fertile, and planted with cocoa-palms, mangoes, jacas and oranges. It has also a whale fishery, cord manufactories of the *piassaba*, and some distilleries. The number of its inhabitants amounts to upwards of 16,000, of which nearly one half, or at least 7000, live in the port of St. Gonçalo. The capital of the province, St. Salvador da Bahia de Todos os Santos, lies near the eastern entrance of the bay, on a projecting rock, which rises about six hundred and fifty feet above the sea. The bay itself, which contains several islands of different sizes, branches out in numerous creeks and coves, and receives many rivers, of which some are navigable to a distance of fifteen or twenty miles. This shows the great advantages this district enjoys in a commercial point of view, and in fact upwards of eight hundred launches, smacks, and barges of different sizes, are constantly employed in bringing the produce of the country to the capital.

To these advantages, the Reconcave adds those of a healthy climate, an excellent soil, and plenty of water. The winter or rainy season begins about the end of March, and continues till August, with considerable intervals of dry weather. In the other months the sky is commonly without a cloud, but thunderstorms are frequent; and these, as well as the breezes and heavy dews, moderate the summer heat and support vegetation. The vine bears three times in the year, and is cultivated on the island of Itaparica, and in other parts; but the climate which forces this triple fruitage has hitherto rendered all attempts at making wine unavailing. The country is hilly, with a gently-undulating surface, and many large and open valleys and even plains between the hills. The soil is commonly of a fine quality, and produces, besides rice, mandioca and many fruits and vegetables, great quantities of sugar, tobacco, and cotton. All the sugar and tobacco exported from Bahia is grown in the Reconcave. The most noted district for the growth of sugar is the valley of Iguape, which extends to the north-east of the small town of Maragogype, along one of the

branches of the Paraguaçu river. It is about five miles long and of varying width; its black soil is most favourable to the sugar-cane. There are nearly twenty sugar works within its narrow limits. Tobacco is raised in many districts of the Reconcave; but the greatest quantity and the best quality is grown in the neighbourhood of Cochoeira, an inland town with upwards of 12,000 inhabitants, situated on the river Paraguaçu. Cotton is raised in several districts; and likewise brought from the sertões and adjacent provinces. All these advantages, with those arising from the fisheries along the coast, especially that of the whales, render the Reconcave the most populous district of Brazil, and probably of all South America. Villages and farm-houses are frequent; and the number of small towns may amount to twenty or thirty. Though we have no exact data in this respect, it is probable that the Reconcave, together with the capital, contains more than three-fourths of the whole population of the province, which, according to the latest accounts (about 1830), amounted to 882,500 persons.

The remainder of the province, which is of a very different character, comprehends the mountains and the sertões. The latter are open dry plains on the backs of the mountains or between their ridges, and afford at certain seasons abundant pasture to numerous herds of cattle. The regular winter or wet season however does not extend to this part of the province. The rain which falls here comes only in thunder-showers, which of course are irregular, in no part frequent, and they occur more rarely in the northern districts of the province than in the south. After rain the ground is immediately covered with the richest verdure, and the cattle fatten; but when drought succeeds to this season of abundance, they browse upon such shrubs as resist the burning sun. If then the streams fail, and the tanks, which the thunder-showers had filled, are dried up, a dreadful mortality ensues among the cattle. Some places, especially in the more narrow valleys, are wooded, and contain a better soil; and in such the few towns of this region have been built. Here mandioca, vegetables, fruits, and cotton are raised. Two or three roads, leading from the town of Bahia to the interior of Brazil, traverse the sertões, and along them villages have been built, and some vegetables are raised; but the largest part of this district has no inhabitants except two native nations, the Camacans and the Patochos.

Among the rivers which water this province, the Rio de S. Francisco is by far the largest. Before it arrives at its boundary, this river has already run about 500 miles from its source, which lies to the south of Villa Ricca in Minas Geraes, and it continues its course to the north, north-east and east between Bahia and the sertão of Pernambuco for at least 600 miles. About 200 miles from its mouth it leaves Bahia, and forms lower down the boundary between the provinces of Seregype and Pernambuco. At no great distance above the place where it leaves Bahia the river becomes unfit for navigation on account of its long rapids and high cataracts. Higher up, its course lies in a wide valley, which is often covered by inundations: but here the rapids are short, and do not impede navigation. This valley lies at a considerable elevation above the sea, perhaps not much less than 1000 feet, if we consider the number of the rapids and the height of the falls of water. For further particulars of this river, its navigation and fish, see FRANCISCO.

The next in size is the river Itapicura, which discharges its waters between the mouth of the Rio S. Francisco and Cape St. Antonio, at nearly an equal distance from each. Its length may amount to nearly 250 miles; but it is only navigable for a short distance and for small craft. The adjacent country belongs to the sertões, and is only fit for breeding cattle.

The most important river of Bahia is the Paraguassu or Peruaguaçu, which rises in the centre of the sertões, and forms a few cataracts before it descends to the Reconcave. It begins to be navigable at Cochocira, above which town rocks impede the navigation. Its lower course lies through the most fertile and best cultivated district of the Reconcave, where nearly all the sugar and tobacco exported from Bahia is collected. The whole course of the river may be about 200 miles.

The other rivers of the Reconcave are the Iaguaripe, the Serigy or Sergipe, the Sarahary, the Pirajà, the Matuin, and the Pitanga. With the exception of the Iaguaripe, which runs nearly 100 miles, and is navigable for large barks for twenty miles, these rivers are small streams, only accessible to boats as far as the tide runs up. The same observation is applicable to the rivers which enter the sea to the north of Point Mutta; among which the most considerable are the Jiquie, the Acarahy, and Marahu. The largest of them has not a course exceeding sixty miles.

The rivers which enter the ocean to the south of Point Mutta do not differ much from the former, except that they rise at a much greater distance from the coast, the course of the larger streams being 150 miles and upwards. The most considerable are the Rio de Contas, the Patype or Pardo, and the Belmonte, which separates Bahia from the province of Espirito Santo. Between the two latter runs the river Salsa, which, about twenty-eight miles from the shore, divides into two branches; of which one enters the Patype and the other the Belmonte river.

The lakes of Bahia are not numerous nor of great extent. The largest is that of Itahype, between the Rio de Contas and the river Ilheos. It is very deep, seven miles in circumference and three in length, with a small island in the middle. It is bordered with extensive woods and forests, from which several small streams flow into this lake; the surplus water is carried to the sea by the river Itahype, which is narrow and deep, and about twenty-five miles long. The fine trees which cover the banks of this lake might be conveyed with much facility to the town of Ilheos by opening a canal from the river Itahype to that of Ilheos; an undertaking which in fact had been commenced some time ago, but discontinued.

The metals, which once formed a considerable portion of the wealth of this province, are now of very little importance. Gold has long ago ceased to be worked: silver is found, but it would not pay the expense of working. Iron is abundant, but neglected. Copper is still worked in the northern district, but not to any great amount. The largest piece of native copper perhaps in the world was found about two miles to the east of the town of Cochocira. It weighed 1666 pounds, and is now in the Royal Museum at Lisbon. Near Maragogype, armenian bole and antimony are found. Some places in the sertões possess great quantities of saltpetre; but the distance from the sea prevents it from being collected. Rock-salt is not uncommon in the mountains along the Rio S. Francisco.

The subjects of agricultural and horticultural cultivation are numerous and important. In the more elevated region to the west, in those places which have a soil favourable to agriculture, wheat is raised; and all the fruits as well as the pulse and grain of Portugal prosper. There are grapes and oranges of good quality, and extensive plantations of quinces, from which considerable quantities of marmalade are made, and exported to Bahia. Cotton is also in some places raised for the market. In the lower region, the most common grain is Indian corn and rice. Mandioca is everywhere raised for the consumption of the inhabitants. Sugar, tobacco, cotton, and a small quantity of coffee are exported. The coffee plant is by some considered as indigenous, as well as the tea plant, which seems to be the same as that cultivated in China, but it is entirely neglected. Ginger-plants and pepper-vines, as well as spice-trees, have been introduced and prosper. Fig trees, pine-apples, cocoa-trees, mangos and jaccas are abundant along the coast. The culture of hemp has several times been attempted, but not successfully; the wild palm-tree, however, affords a substitute, and the bark of the piassaba-tree supplies cordage and cables; the latter answers better for oakum because it lasts longer under water.

The spontaneous products of the soil, especially in the woods, are much more numerous: many of them have not yet found their way into our botanical system. Among medical plants are ipecacuanha, Jesuits' bark, jalap, tamarinds, Brazil root, curcuma or turmeric, and betony. Among the trees which produce gum are the copal, dragon's blood, angelim, mastic and copaiba. The trees which supply timber and the materials for cabinet works are very numerous, as well as those whose wood is used in dyeing, as Brazil-wood, bow-wood, iron-wood, oil-wood, and others not known in Europe. The cajue-nut-tree is very abundant. The nayha-tree, which grows in the interior, produces a nut little inferior to the cocoa-nut; it is very sweet. There are also numerous species of palm-trees, some of which attain a prodigious size.

A singular feature in the vegetation of Brasil, and especially of this province, is the leafless parasite plants. 'They are all comprehended under the general name of *timbo*, and

serve for basket-work and are beaten into tow. Their juice is used in tanning; being bruised and cast into the lakes and rivers, they stain the water with a dark colour and intoxicate or poison the fish. These plants twist round the trees, climb up to them, grow downwards to the ground, take root there, and springing up again, cross from bough to bough and tree to tree, wherever the wind carries their limber shoots, till the whole woods are hung with their garlanding, and rendered almost impervious. The monkeys travel along this wild rigging, swing from it by the tail, and perform their antics. This vegetable cordage is sometimes so closely interwoven, that it has the appearance of a net, and neither birds nor beasts can get through it. Some are as thick as a man's leg, their shape three-sided, or square or round; they grow in knots or screws and every possible form of contortion. Any way they may be bent; but to break them is impossible. Frequently they kill the tree which supports them; and sometimes they remain standing after the trunk which they have strangled has mouldered in their involutions.' (Southey.)

The zoology of this region is less interesting. The domestic animals of Europe have been introduced, but they are far from being numerous, except black cattle, which are fed on the sertões in great numbers; but, owing to the frequent want of pasture, they are subject to great mortality, and the supply is not sufficient for the sugar-works, the usual consumption, and the furnishing of ships. The deficiency is made up by the provinces of Piauhy and Goyaz. Hogs are few; and sheep and goats still fewer, being almost universally deemed of little or no use. Among wild animals, the anta or tapir, the ounce, the boar, and deer, are the most numerous species and most hunted. Monkeys of different kinds are common in the woody districts. Parrots and some other birds, more distinguished by the beauty of their plumage than by their voice, are found in all parts of the province. Among the snakes some are poisonous. Various species of bees produce honey; some in the cavities of the trunks of the trees, as in Poland and Russia, others in little hives of wax which they form in the twigs. Whales, which were once so abundant along the coast, that the produce of the fisheries formed a considerable article of exportation, have much decreased in number; and at present the train-oil which is obtained from them is hardly adequate to the consumption of the province. Sharks are very frequent, and a good deal of oil is extracted from their livers. The sea as well as the rivers, and especially the Rio S. Francisco, contain many other kinds of fish, which afford subsistance to numerous families.

The province of Bahia is divided into three comarcas or districts, of which that of Ilheos was formerly a separate capitania, and comprehends the coast south of the island of Tinhare, and all the country inland to a distance of about a hundred miles. The comarca of Bahia, which lies to the north of it, contains the Reconcave, and all the country to the north of it up to the boundary of the provinces Seregype and Pernambuco. The comarca of Jacobina comprehends the western part of the province.

The principal places in Ilheos are Olivença, Ilheos, Villa de Contas, and Camamu; in Bahia, besides the capital (with 182,000 inhabitants), Cochoeira, St. Amuno, Maragogype; and in the comarca of Jacobina is Jacobina, Rio de Contas, and Urubu, on the Rio S. Francisco.

(Alcedo, Southey, Henderson, and Schäffer; Map in Spix and Martius' *Travels*.)

BAHIREH, a province of Lower Egypt. [See EGYPT.]

BAHLINGEN, a bailiwick (*ober-amt*) in the south-west of Würtemberg, and in the circle of the Black Forest; bounded on the north and east by the principality of Hohenzollern, and in the south by the Baden dominions. It consists of the vale of the Eyach, which river flows through it; and has an area of 126 square miles. There are 2 towns, 21 villages with cure of souls, three of which have markets, and 10 other villages and hamlets in this bailiwick; it is inhabited by 26,128 Protestants, and 3472 Roman Catholics, who rear much cattle, breed sheep, and are actively engaged in the manufacture of bed-ticking, stockings, brandy, &c.; they do not raise sufficient grain for their own consumption.

The local authorities are established in the town of the same name, which is situated on the Eyach, and on the high road into Switzerland. It contains about 430 houses, and 3200 inhabitants, carries on considerable trade, particularly in grain, manufactures linens and woollens, spirits, &c. Bahlingen was the birth-place of N. Frischlin, the celebrated philologist. There are sulphurous baths in its vicinity. 48° 16′ N. lat., 8° 51′ E. long., about forty miles south-west of Stuttgart.

BAHR, the Arabic word for the sea, a lake, or a large river, appears as a component part of many proper names in eastern geography: *Bahr-al-Kolzum*, 'the Sea of Kolzum,' *i.e.* the Arabian Gulf, or Red Sea, especially its north-western extremity (the Sinus Heroopolites); *Bahr Lût*, 'the Lake of Lot,' *i.e.* the Lacus Asphaltites, or Dead Sea, in Syria; *Bahr-al-Abiad*, 'the White River,' and *Bahr-al-Azrak*, 'the Blue River,' *i.e.* the two principal southern branches of the Nile. The diminutive of *Bahr* is *Boheirah*, or *Boheirat*, 'a small lake,' which is likewise found occasionally in maps or books of travels relating to the geography of the east; as *Boheirat Tabariyah*, 'the Lake of Tiberias.' It has passed into the Portuguese language under the form *Albufeira*, 'a reservoir, a tank, a lagune;' and into Spanish under the two forms *Albufera* and *Albuhera*, in the same sense. The prefixed *al* in these words is the Arabic definite article; and it is a general remark that the letter *h* of many Arabic words that have been received into the Spanish and Portuguese languages, has been changed into *f*.

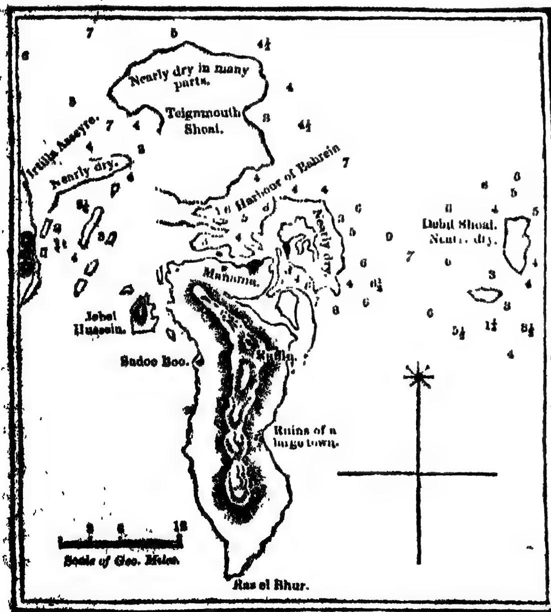
BAHR-BELA-MA, or 'the waterless sea,' a remarkable valley in the Libyan desert, on the borders of Egypt, about fifty miles west of Cairo. It runs westward of and parallel to the valley of the Natron lakes, from which it is divided by a sandy ridge. General Andreossi, who visited it, saw that it extended above thirty miles in a N.N.W. and S.S.E. direction, but he did not ascertain its northern termination, which some have supposed to reach the shore of the gulf of the Arabs, S.W. of Alexandria. Browne, however, who travelled along the coast of that gulf, did not see any appearance of the valley on that side. Hornemann, in his journey from Cairo to Siwah, seems to have crossed the southern extremity of the Bahr-bela-ma, without knowing it, as he reached it after dusk. (See Major Rennell's *Geographical Illustrations of Hornemann's Route*, ch. ii.) The valley is very deep, and about nine miles in breadth: it is totally barren and waterless. It has, however, the appearance of having been once a watercourse, and is strewed with loose stones, quartz, silex, fragments of jasper, &c. There is also a quantity of petrified wood, trunks of trees, and large splinters. Andreossi found also the vertebræ of a large fish. (Andreossi, *Mémoire sur la Vallée des Lacs de Natron, et sur celle du Fleuve sans Eau.*) From the Copt convents in the Natron valley it takes an hour and a half to reach the Bahr-bela-ma; the descent of the ridge which divides the two valleys took Andreossi forty minutes. Several writers have supposed that the Nile, or at least a branch of it, once turned westwards near the pyramids of Sakkara, where there is a depression in the ridge that bounds the valley of the Nile on that side, and that it flowed through the valley now called Bahr-bela-ma as far as the gulf of the Arabs. Major Rennell, however, totally discards this supposition, which appears to have been in some measure founded on a misunderstood passage of Herodotus. (See Beloe's mistranslation of this passage, *Journal of Education*, No. II. p. 330.) Herodotus (ii. 99) says, that before the time of King Menes, and consequently before the building of Memphis, the river flowed entirely along the sandy mountains on the side of Libya, that is to say, through the low flats now called the Plain of Mummies, near Sakkara. Menes constructed a bank 100 stadia to the south of Memphis, and led the river into a new channel which he had excavated, more to the eastward, in the middle of the valley where it flows at present. On the ground thus rescued from the water, Menes built Memphis; and in Herodotus' time, when the Persians were masters of the country, the embankment was annually repaired and guarded by soldiers; 'for,' says Herodotus, 'if the river were to break again on that side, all Memphis would run the risk of being covered with water.' All this evidently has nothing to do with the Bahr-bela-ma, which is far away on the other side of the western ridge. It has been supposed that part of the water of the Nile, when the river was flowing close to the western hills, might have found its way into the Libyan desert through the depression in the ridge which Pococke observed near Sakkara; but Major Rennell observes that the level of the depression is above the level of the river at high water, and the story about the river being turned is hardly credible in the form in which it has come down to us.

There is another Bahr-bela-ma mentioned by Browne, farther south, between the canal of Youssouf and Lake Keroon, or Mœris; it was formerly part of the communication between the Nile and the lake, but is now dry, the canal passing more to the south-west. (Rennell, *Geographical System of Herodotus*, sect. 18.) In fact, Bahr-bela-ma seems to be a general appellation with the Arabs for a place where water once was or appears to have been flowing. We may observe here, that petrified wood is found not only in the Bahr-bela-ma visited by Andreossi, but lies also scattered in large heaps over that part of the Libyan desert which Hornemann crossed for several days to the westward on his way to Siwah. He saw trunks of trees, of from thirty to forty feet in length, broken and shivered into large splinters, lying near each other. Some trunks are twelve feet in circumference, and still retain their side branches, and the grain is perfectly discernible. They are of a dark, and some of a brownish, colour, and so much like wood, that the slaves belonging to the caravan used to gather them and bring them to the camp as fuel. But none of this petrified wood has the appearance of having been wrought with tools, or applied to any purpose of man, and the story of the masts and other parts of ships which were said to have been found in the Bahr-bela-ma are mere visions of a fancy worked upon by the contemplation of a favourite hypothesis. How the trees came upon the Libyan waste is another question: the fact, however, proves that that part of the world must have undergone very great changes at remote times. [See NATRON LAKES.]

BAHR-EL-ABIAD. [See NILE.]

BAHR-AL-AZRAK. [See NILE.]

BAHREIN BAY is on the Arabian coast of the Persian Gulf, between Ras Reccan and Ras Tannora. It extends in a south-westerly direction 70 miles, but is so completely filled up with extensive sandy shoals as to be perfectly unnavigable by vessels of burden. Its shores are low and sandy, and, with the exception of a short distance to the south-west of Ras Reccan, almost without inhabitants.



[From the Survey of the Bombay Marine.]

BAHREIN ISLAND, otherwise called AVAL, is situated in the middle of Bahrein Bay. It is 27¼ miles long from north to south, and about 10 miles across; it is surrounded by shoals, most of which are dry at low water. A range of moderately high hills runs through the centre of the island, but the shores all round are very low. The island is fertile, and covered with plantations of date trees, but only about one fifth of its surface is under cultivation. There are numerous springs of excellent water in the interior, but at too great a distance from the port to be available for shipping. The only water with which they can be supplied, as well as all that is used on the island of Arad, is brought up from the bottom of the sea at the depth of eighteen feet, where there is a spring of good fresh water. It is procured in skins with the top of a jar fixed to the mouth; through this orifice the fresh-water rushes into the skin, but, as may be supposed from the method of obtaining it, the water is rather brackish and expensive.

The chief town, called Manama, is at the north-east extremity, and is large and populous, being supposed to contain upwards of 40,000 inhabitants. The buildings are comparatively well constructed, and the place altogether more respectable than any town in the Persian Gulf. The bazaar is well supplied with fine cattle, sheep, poultry, fish and vegetables; and a very considerable trade is carried on with the town, particularly by those tribes who inhabit the whole extent of the Arabian coast between Ras el Khyma and Grain. The prices of cattle and sheep are, however, higher than at any other port in the Gulf, and rice, being an article of importation, is scarce and dear. Upwards of 140 vessels of various sizes are employed in trading, and they possess many so constructed as to answer for war or traffic; but the pearl fishery is of the greatest importance to the island, which in the season employs 2400 boats, each containing from eight to twenty men. The annual produce of these fisheries amounts, it is said, to sixteen or twenty lacs of dollars.

There is a very good harbour to the north of Manama, but it is open to the north-west winds, which blow strong during the winter months; and another to the south-east of the town, which, though smaller, and not so easy of access, should be preferred, as it is sheltered from all winds.

The town of Ruffin, situated on a hill seven miles south of Manama, and three from the eastern shore, is next in importance; but, like most Arab towns, it consists only of a fort surrounded by inconsiderable houses built on the ruins of a former town; and still further to the south, on the eastern shore, are very extensive ruins. Besides these there are about fifteen villages on the island.

The island of Arad, lying close to the northward of Bahrein, is very low, and nearly divided into two by the sea at high water. It forms the eastern side of Bahrein harbour, and the northern of the smaller port to the south-east. At its south-west extremity is the town of Maharag, about a mile to the eastward of Manama, but not nearly so populous. It is environed by a wall for defence by muskets, and a communication is constantly kept up between the two places by means of ferry-boats, the distance across being only 900 yards. The distance from the west coast of Bahrein to the Arabian shore is only 10 miles, and between the two lies a small low island called Jebel Hussein, which is not inhabited. Bahrein is surrounded by flats, one of which, called Teignmouth Shoal, extends off from the island 15 miles to the northward, with a breadth of 14 miles: many parts of this shoal are dry at low water.

Manama lies in 26° 14′ N. lat., 50° 36½′ E. long. It is high water at 5h. 20m. P.M., and the tide rises seven feet. It was surveyed by the East India Company's Marine in 1825.

This island has undergone numerous political changes. About the time of the first arrival of the Portuguese it was tributary to the king of Ormuz, who applied to them for assistance to enforce the payment of arrears, and a detachment under Correa succeeded in taking the town. The Portuguese thus gained a footing on the island, which they maintained, with more or less security, for nearly a century, and there still exists, three miles west of Manama, the ruins of a fort, off which lies a small rock on which was a lighthouse. After the Portuguese were driven from these seas it fell under the dominion of Persia. Since this time it has been successively in the possession of various independent Arab chiefs of the neighbouring continent, as their tribes became powerful; to the Wahabees at one time, or at others has been tributary to the Persians, the rulers of Ormuz, or Bushire, or to the Imaum of Omaum, to which last monarch it now pays a tribute of 30,000 dollars yearly.

The Bahrein islands were known to the antient geographers under the names of Aradus and Tylus, or Tyrus; and according to an old but not a probable tradition, the Phenicians on the coast of the Mediterranean emigrated from these islands, and gave the names of Tyrus and Aradus to the two small islands on the coast of Phœnicia, the sites of the cities of Tyrus and Aradus. Pliny speaks of the pearl-fisheries, and mentions the springs of fresh water under the sea.

(Horsburgh's *East India Directory*; Fraser's *Khorasan*, &c.)

BALÆ, the name of a sea-port town and a celebrated watering-place of the antient Romans, which was situated on the western shore of the Bay of Naples, between the Lucrine Lake [see AVERNO] and Capo Misenum, and opposite to the town of Puteoli, now Pozzuoli, from which it was distant about three miles across the water. The ground on which Baiæ stood is supposed to be that crescent-like sweep of coast between the base of Mount Grillo, which divides it from the Averno and Lucrine Lakes, and the promontory on which the present Castle of Baja stands. It is a narrow semicircular slip of ground, about one mile in length and confined between the hills and the sea. Here the wealthy Romans built their villas and baths, and, for want of space, often encroached upon the sea. Horace (*Carm.* 2, 18) alludes to this practice. Remains of sub-marine foundations, and of jetties and buttresses, projecting into the water, are still seen. The only remains above ground are three or four circular buildings, commonly called temples, but two of which, at least, were, to all appearance, thermæ, or warm-baths. There is one building, however, rising behind a small projection of the shore, near the centre of the crescent, which is generally believed to have been what it is called, namely, a Temple of Venus, for that goddess is known to have had a temple at Baiæ. It is an elegant structure, octagonal outside, but circular in its internal area; the diameter of which is about ninety feet. Adjoining to the temple are several small rooms, having on the walls stucco reliefs, representing erotic subjects. The pretended Temple of Mercury, also called *Truglio*, consists of two quadrangular rooms, and a circular one: this last is vaulted over like a rotunda, receiving the light from a round opening at the top, and is about 70 feet internal diameter; it has niches and several lateral recesses. The pavement is swamped with water, which issues out of the ground.

The whole of this country is full of mineral springs. The baths, sometimes called Tritoli, and sometimes the baths of Nero, although there is no reason for believing that they were constructed by that emperor (Paoli, *Antichità di Pozzuoli*), are two separate buildings near one another. They stand on the slope of Mount Grillo, farther from Baiæ, looking towards the Lucrine Lake. Nero had a villa somewhere in this neighbourhood, but the site is not known, nor that of the villa of Julius Cæsar. Augustus frequented the coast of Baiæ: and his nephew, young Marcellus, the presumptive heir of the empire, died here at the age of twenty, of a disease of the chest for which he had been advised to try the waters and the climate of Baiæ. Under the profligate Cæsars who succeeded Augustus, Baiæ became a scene of vice, of lust, and cruelty. Tiberius, Caligula, Nero, and Caracalla, left on these shores memorials of their infamy. Seneca (*Epistol.* 51) describes the effeminacy and the unbridled licentiousness that prevailed here. Silius, Martial, and Statius celebrated the beauties of Baiæ. The great attractions of Baiæ seem to have been its genial winterless climate; its situation protected by a crescent of hills from the blasts of the north and of the south-west winds, and open to the eastern breeze, which is freshened by blowing across the bay; a sea generally smooth, abundant hot-springs, and a delightful view—these were the charms which made opulent men, tired of the noisy bustle and the sultry heat of Rome, resort to Baiæ for quietness and for health.

With the fall of the empire, Baiæ became deserted by its Roman visiters, its villas and palaces fell into decay, and the incursions of barbarians and earthquakes completed its desolation. The whole of this coast has undergone changes, and the sea comes evidently farther in shore than it did in the time of the Romans; it also appears to have stood with respect to the land, at some intermediate period and in consequence of some convulsion of nature, several feet higher than its present level, if we are to judge from the marks of the dactylides (a species of shell-fish which burrows in the stone) on the three standing pillars of the Temple of Serapis, near Pozzuoli. [See POZZUOLI.] The whole coast of Baiæ is now a desert: a few *masserie* or farms and vineyards are scattered on the hills above, but chiefly on the opposite slope towards the Lake Fusaro and Cumæ. [See CUMÆ.] The numerous springs being neglected, have oozed down the declivity of the hills, and formed stagnant pools, the exhalations of which render the air unwholesome in summer. The ground is strewed with foundations and remains of walls, bricks, cement, and pieces of marble. Under the water, near the shore, cameos, carnelians and other valuable stones have been found.

The name of Gulf of Baja is now applied to the extent of sea between Cape Misenum and the point of Pozzuoli, which affords a good anchorage to large vessels and men of war, while the bay of Naples is exposed to the fury of the *libeccio* or south-west wind. The castle of Baja is a modern structure rising high on a cliff above the sea; it has two ranges of batteries, which command the roads, and a garrison is kept in it. South of this point is the coast of Bauli, which was a continuation of Baiæ. Hortensius, the contemporary and rival of Cicero, had here a fine villa, where afterwards several emperors resided, and where Nero had his last interview with his mother. The attempt to drown Agrippina took place off Baiæ: she was afterwards murdered in her own villa near the Lucrine Lake: her body was burnt and her ashes privately buried near the road to Misenum, where a modest monument was raised to her after Nero's death. (Tacit. xiv.) The structure, however, which now goes by the name of Agrippina's sepulchre appears rather to have formed part of a theatre probably belonging to Hortensius's villa. Further south near the shore are the *Cento Camerelle*, a number of small subterraneous apartments, the walls of which are coated with cement; the partitions between do not reach the vault. It was probably a place for either soldiers or slaves. At Hadrian's villa near Tivoli, there are ranges of similar apartments, which are said to have been destined for the Emperor's guards when he resided there. The poor village of Bacolo or Bauli is near the Cento Camerelle; it is inhabited by fishermen. On the hill above it is the structure called *La Piscina Mirabile*, which was evidently a reservoir for water. It is the best preserved piece of antiquity in this neighbourhood. Forty eight pillars ranged in four rows support the vault; they, as well as the lateral walls, are covered with a cement extremely hard. This reservoir is supposed by some to have supplied the fleet in the harbour of Misenum; by others it is thought to have been one of the famous fish-ponds of Lucullus; others again think it to have been part of Nero's projected, but never finished, reservoir, in which he intended to collect all the hot springs between Cape Misenum and Averno. (See Suetonius, *Nero*, 31.) On the south side of the hill on which the Piscina stands lies the harbour of Misenum, which is an inlet of the sea, sheltered by the promontory of the same name. It was one of the principal stations of the Roman fleet under the Emperors. The innermost part forms a pool called Mare Morto, the flat shores of which are called I Campi Elisii. They are shaded by mulberries and poplars, garlanded by festoons of vines, and their lonely paths lined by tombs intermingled with cypresses. This was a vast cemetery for the people who died in this neighbourhood; the honours of the grave alone could ensure the spirits of the departed free ingress into the Elysian shades, and the depository of the body becoming, in the fancy of poets, confounded with the abode of the souls, the burying ground of Misenum was styled the Elysian Fields, and the Mare Morto was the Acheron through which the dead were wafted to their last abode. The villa of Caius Marius, afterwards the property of Lucullus, is said to have been on the pinnacle of the hill or promontory of Misenum, looking on one side to the sea of Sicily, and on the other to the Tuscan sea. (Phædrus, ii. 5.) Tiberius died in this villa. The town of Misenum appears to have been at the base of the hill. To the west of Mare Morto is the hill called Monte di Procida, which faces the island of that name.

BAIGORRY, VALLEY OF, in the department of Basses Pyrénées (Lower Pyrenees) in France. This valley commences at the frontier of France and Spain, and is about eleven miles long and eight broad. It is watered by a little stream, the Hourepeleco, which falls into the Nive, a tributary of the Adour. The Hourepeleco has a longer course than the Nive itself above their junction; and it is probably from this circumstance, that in the *Encyclopédie Méthodique* (*Géog. Physique*—art. Baigorry) it is called the Nive. The principal place in the valley is the village of St. Etienne-de-Baigorry, near which were the most important copper-mines and copper-works of the department.

These mines were worked at a very early period, probably in the time of the Romans, but they were afterwards abandoned. In 1728, M. de la Tour obtained a grant of them. The works commenced in 1730, and appear to have continued till some time after the commencement of the present century. That they are not worked now, is only

inferred from the department not being mentioned in the last edition of M. Malte Brun's *Géographie Universelle* (Paris, 1832), as one of those yielding copper. The works were in an inconvenient and confined spot, which prevented their being carried on so economically as they might have been if better situated. These disadvantages were, however, counterbalanced by a constant supply of water as a moving power, and by a supply of wood close at hand. The ore was worked in ten mines, and the supply is stated in the *Encyc. Méthod.* Paris, 1809, to have been abundant. The buildings for the various processes of roasting, melting, and refining the ore, separating the silver which was contained in it, &c., were extensive.

The yellow copper ore, and gray copper ore, each yielding about 30 per cent. of copper (and the latter also from 1 to 2½ per cent. of silver), are found in the neighbourhood of these mines.

About a mile N.W. of the village, and on the other side of the river, are the ironworks of Echaux, supplied with ore from a mine in the neighbourhood, or from La Bastide de Clarence, in the same department. The iron wrought here is of excellent quality, and finds a ready sale.

The population of the commune of St. Etienne de Baigorry in 1832 was 3463; that of the village itself, 1599.

BAIKAL, the largest and most remarkable of all mountain lakes, is embosomed in the mountain-ranges which skirt on the north the high table-land of that part of Asia. It lies between 51° and 56° N. lat., and between 104° and 111° E. long. Its length, according to Georgi, is 355 miles, but the modern Russian accounts increase it to about 400. Ritter, therefore, compares it very properly with the Adriatic Sea, from the gulf of Trieste to the straits of Otranto; but it is not half as wide as that part of the Mediterranean. Its widest part between the northern extremity of the island of Olkhon and the mouth of the river Bargusin is not more than about fifty-two miles; and between the mouth of the Selinga and the rivulet Buguldeikha, the two shores are only twenty miles distant from one another. Its mean breadth varies between thirty and forty miles, and its circumference is said not to fall short of 1200 miles. Its surface is calculated by Berghaus to cover 14,800 square miles, so that it occupies a space larger than half of Scotland. This lake, like other alpine lakes, is very deep, with the exception of a few tracts along the shores, and some bays; in some places the bottom has not been reached by a line of a hundred fathoms.

The greatest part of the lake extends in the direction south-west and north-east, but both extremities are somewhat bent: the northern, from the mouth of the river Bargusin to the most northern end of the lake, lies nearly north and south; and the southern, from the place where the lower Angara issues from it, to its western extremity, east and west; so that with some allowance, the form of the lake may be compared to the segment of a circle. That portion of the lake which lies to the west of the embouchure of the river Selinga, and of the outlet of the Lower Angara, is the narrowest, and commonly called the Bay of Kultuk.

Within the curvature of the segment, or on the north-western shores of the lake, the mountains which encircle it so closely as to constitute in many parts the very shores, are interrupted only by one narrow and deep crevice, which occurs towards the western extremity of the lake, and by which the Lower Angara carries off the surplus of the waters of the lake. Numerous streams descend from these heights into the lake, but all of them have a short course, and are only torrents, which, however, commonly flow even in the hottest summer. The mountain-ranges, which inclose the eastern and southern sides of the lake, advance, in many parts, as close to its shores as those on the other sides of the lake, but they are more broken into bays and capes; and besides, there are two large openings and one narrow opening in them. By the latter, the Bargusin river, which enters the lake north of 54° N. lat. after a course of about 300 miles, carries to it the drainage of a country which, in extent, exceeds any one of the counties of England, except Yorkshire. The Upper Angara, which, after a course of nearly 450 miles, discharges its waters into the north-eastern extremity of the lake, enters it by an opening which, on the shores, enlarges to about ten miles and upwards, and drains a country which perhaps is not inferior to all Scotland south of the Forth and Clyde canal. But by far the greatest volume of water is brought down by the Selinga, which terminates its long course of about 700 miles, nearly in the middle of the south-eastern side, between 52° and 53° N. lat. At its mouth, the mountains skirting the shores of the lake are about twenty miles distant from one another, and the Selinga, with its tributaries, drains a country extending 5° N. and S., and nearly 10° from E. to W.: it probably does not yield in extent to Great Britain, and may even be more. Thus the basin of the lake extends to a considerable distance from its shores on the east and south. At the source of the Upper Angara its boundary is distant upwards of 250 miles direct distance, and along the course of the Bargusin, nearly 100; the farthest tributaries of the Selinga, as the Orkhon and Karao, rise at a distance of at least 350 miles. On the north-western side of the lake its basin rarely extends to twenty miles, and perhaps never farther. The rivers which, besides the three larger ones already mentioned, empty themselves into the lake, are small, but very numerous. A modern traveller asserts that they amount to 177, and on a chart published by the Russian government some years ago, 160 are inserted. Georgi asserts that the water carried off from the lake by the Lower Angara, its only outlet, though it is an extremely rapid stream, is not one-tenth of the mass brought down by these numerous rivers.

According to an incomplete barometrical measurement, the surface of the lake was stated to be 2318 feet above the sea, but more modern observations have reduced it to 1793 feet. This accounts, in a great degree, for the severity of the seasons on its shores and the whole extent of its basin. The summer is very short, and the nights are cold and often frosty: sometimes it begins to snow in August, and always in September. In the bogs and morasses ice is always found, even during summer heat. This is probably in a great measure to be attributed to the thick cold fog, which often, for many days together, covers the surface of the lake even in the months of July and August. The lake is never covered with ice before the middle of December; often only in the beginning of January, which must be ascribed to its great depth and its troubled surface. It may be traversed on sledges up to the end of April, or even the beginning of May. No traces of the approach of spring are discovered before the middle of April, and this season shows itself in its vigour only at the end of May or the beginning of June. In comparing these data with the climate of Europe, we find that they agree pretty well with that of the countries lying round the Gulf of Bothnia, which is about 10° farther to the north.

This severity of the seasons renders the countries about the lake unable to maintain a numerous population, but still the population is less than we should suppose it to be, even taking the climate into the account. The southern districts of its basin being subject to the Chinese empire, and in the Russian accounts, the northern being mixed up with other countries, we are unable to form any idea of the population which approximates to truth; but according to what we learn from Pallas it is probable that the whole population of the countries belonging to the basin of the lake does not much exceed 50,000, and certainly falls short of 100,000, even if we make the necessary allowance for the colonies lately established there by the Russian government. This scarcity of population, however, is not to be attributed entirely to the want of productive powers in the country itself, but to the late period in which agriculture was introduced, and the slow progress of that art in cold countries. After the beginning of the last century the culture of the soil was begun by the Russians; yet there are in many places undoubted signs that, at some remote period, this country was cultivated with care by some unknown nation, which also worked the iron and copper mines, and probably was destroyed, or obliged to leave the borders of the lake. More than fifty years after the introduction of agriculture, Georgi found only a few fields cultivated on the banks of the Bargusin, and still much less on those of the Upper Angara; but on the delta of the Selinga, from eight to nine hundred families were occupied in cultivating the ground. Since that time some improvements have taken place, but to no great extent. On the Selinga alone a small quantity of wheat is raised; besides this, winter-rye, barley, oats, hemp, and tobacco, likewise the most common vegetables as cabbages, potatoes, beans, and peas; but the peas are always destroyed by the frost on the banks of the Bargusin and Upper Angara, and sometimes even the barley.

Not one-fourth of the present population, small as it is, can be maintained by the scanty produce of its agriculture; but the lake supplies them with food in abundance. Con-

trary to what is generally observed of mountain lakes, the Baikal abounds in fish, and from this source nearly all the inhabitants of its shores derive subsistence and even a competency. The largest fish of the Baikal is the sturgeon (*Sturio accipenser*), which also ascends the Selinga, Bargusin, and Upper Angara, but not the other rivers. It attains a great size, and sometimes weighs 190 pounds. During the whole summer this fish is caught and salted, and, as well as the caviar and the isinglass prepared from its roe and bladder, is destined for the market. The salmon (*Salmo migratorius*), in the month of August, leaves the lake and ascends the larger rivers and some of their tributaries in incredible numbers; and thus affords subsistence to all who inhabit their banks. A considerable quantity of salmon, in a frozen state, is sent to the adjacent countries. This fish is sometimes two feet in length, but it commonly varies in length from fourteen to sixteen inches. The seals also afford some profit to the fishermen. These animals are found all over the lake, but especially to the north of the mouth of the Bargusin; they are of the same species as those of the Baltic and German seas. Georgi could discover no difference, except that the hair of those of the Baikal is softer. From 1200 to 2000 seals are annually killed, especially the young ones, whose soft skin is much sought after by the Chinese, who dye them and use them to ornament their state-dresses. The train-oil obtained from the seals is partly exported to China, and partly consumed in the preparation of leather in Siberia.

The existence of the salmon, of the seal, and of a kind of sponge in the fresh water of the Baikal, has given rise to many speculations among naturalists. Pallas and Georgi are unable to explain this phenomenon, otherwise than on the supposition that the Lake of Baikal, at some remote period, formed a part of the Northern Ocean, though between it and the lake the mountains rise to at least 3000 feet above the level of the sea: or, on another supposition, that these animals were transported into the lake by some excessive inundation of the Lena river, whose sources are not far from its western borders; but here too the mountains rise at least to 3000 feet. The salmon is also found in another lake of Siberia, that of Madshar, which is embedded in the mountains of Saïansk.

A singular fish of the Baikal has been noticed by Pallas, and was called by him *Callyonymos Baicalensis*. Its length varies from four to six inches, and except the head, a very thin back-bone, the skin and the fins, it consists only of a piece of fat, which soon dissolves over the fire into very fine train-oil, which may be used nearly like olive-oil. What rendered this fish most remarkable was the circumstance, that it had only been known by the fishermen of the Baikal for the first time five years before the arrival of Pallas, and that in 1770 and 1771 it made its appearance in such immense numbers, that the dead fish in some places, and particularly near the mouth of the Bargusin, covered the shores to the depth of several feet. In 1772 it had again become so rare that Pallas and Georgi had some difficulty in procuring a few specimens. Pallas is of opinion that this fish generally lives near the bottom of the lake in the greatest depths, and that it was carried to the surface of the lake, in the above-mentioned years, by some draughts of gas or air, but being here out of its element, languished and died; for it was always taken either actually dead, or in a very languid state. The train-oil made of this fish found a ready sale among the Chinese.

Agriculture is exclusively exercised by the Russians settled on the shores of the lake; but in the fisheries the natives, especially the Tunguses, have some part. The Tunguses, however, occupy themselves chiefly with the hunting of the wild beasts which inhabit the woods and mountains. Wolves, bears, foxes, lynxes, wild cats (*Felis unca*), and gluttons (*Ursus gulo*), are numerous in the woods and on the steppes; and otters abound in the rivers. Beavers are only found in the upper part of the Upper Angara, but the elk and the musk-goat nearly in every district bordering on the lake. The musk obtained from the latter, however, does not emit so strong a scent as that obtained from these animals in Thibet. Deer and stags abound everywhere, but the rein-deer is only met with in a wild state in the northern mountains, and even there it is not numerous. The common hare, the mountain hare (*Lepus alpinus*), and the Daurian hare (*Lepus Dauricus*) are found in great numbers on the steppes. The sable too as well as the hermeline abound in many districts. The squirrel (*Sciurus vulgaris*) exists in this region in incredible numbers. Sometimes they unite in companies and travel through the woods and steppes, swimming over rivers, and traversing the summits of the mountains. The colour of the skin is reddish in summer, and grey in winter. A larger species, which inhabits the northern and eastern shores of the lake, assumes in winter a silver-grey colour. The species whose skin sells highest is of the colour of the sable in summer, and black-grey in winter. An immense number of squirrel skins is sent from here to the other parts of Siberia and Russia, as well as to China, besides the consumption on the spot, which is very great.

The Burates, a Mongolic tribe, the neighbours of the Tunguses, are chiefly employed in rearing cattle. They keep horses, sheep, black cattle, goats, and camels. The last are numerous in some steppes, and many of them white as snow. They pass the winter there, and live on dry grass and saline plants. Their flesh and milk are eaten, and their skins afford excellent bags for liquid matters; they are also used, in some difficult parts, in the mail-coaches like horses, especially on the road to Nertshinsk. The Burates possess numerous herds, principally on the eastern side of the lake, where one person has sometimes 1000 camels, 4000 horses, 8000 sheep, from 2000 to 3000 head of black cattle, together with a small number of goats. The Tunguses generally have only herds of reindeer, which are of a white colour, rarely spotted, but never grey, while those which live in the neighbouring woods in a wild state are always of an ash-grey colour.

The commerce which the Russians carry on with the Chinese is considerably facilitated by this lake. The Russian goods, for which the town of Irkutsk, on the banks of the Lower Angara, forty miles from the lake, is the principal depôt, are carried thence to Kiachta in summer by small vessels and large barges, and in winter by sledges. The vessels are drawn from Irkutsk to the place where this river issues from the lake, and thence they sail over the lake to the mouth of the Selinga. They then ascend this river to Wershnei, Udinsk, or even to Selinginok, but rarely higher. Thence the goods are carried by land to Kiachta, a distance of about sixteen miles. The navigation on the lake lasts only from May to the month of November, when the masses of ice render it dangerous. From the month of January to the end of April the goods are carried on sledges, and the great smoothness of the ice of the lake considerably abridges the time necessary for taking them from one place to the other. Without the facility which this lake affords to the carrying on of this continually increasing commerce, it probably would never have risen to any degree of importance. [See KIACHTA and MAIMATSHIN.]

The country around the lake displays unequivocal traces of volcanic agency. In some places, at its western extremity, large masses of lava have been discovered, and on the eastern side, especially along the course of the Bargusin river, hot and sulphureous waters are numerous. It would even seem, that the lake itself, or some place in its neighbourhood, is the focus of earthquakes. These terrible phenomena are very frequent here, and it is even supposed that they happen every year in one place or other, though data are wanting to prove it. To their operation the singular movements to which the waters of the lake are subject may probably be attributed. Sometimes, though rarely, the surface of the lake is perfectly smooth and yet the vessels are so much agitated that it is difficult to stand in them. But even in the most complete calm the surface is very rarely without an undulation. This undulation, called by the sailors *kolychen* or *zyb*, increases whenever a wind is coming. This increase takes place about an hour before the wind arrives, and the undulation proceeds from the quarter whence it advances. Sometimes, with very moderate winds, a wave rises on the surface, proceeds a distance and breaks, and is soon followed by another in the same direction. A moderate wind agitates the surface violently, but a storm produces much less effect on it. All these peculiarities prove that there is some hidden cause for these strange movements of the water.

The islands which exist in this lake are numerous along the eastern, and in some places along the western shores, but most are of small extent, and nothing but masses of rock, which seem to have been separated by some convulsion of nature from the mountains on the shore. The largest is

the island of Olkhon, which from S.W. to N.E. extends about thirty-two miles, but nowhere exceeds ten miles in breadth. It is extremely rocky and mountainous; and on its south-western shore the mountains rise to a considerable height, but do not preserve the snow in summer. In its neighbourhood there are some rocks on which seals are annually killed in great numbers. The mountains, in many parts, are covered with larch, birch, pines, poplars, and willows; other districts afford good pasture for the cattle of about 150 families of Burates, who are the only inhabitants of the island. The strait which separates it from the continent is only two miles wide, but very deep, a line of 100 fathoms not reaching the bottom; and the fishermen assert that even a line of 200 fathoms would not reach it.

The name of the lake is said to be derived from the language of the Yakutes, who once inhabited its shores, and at present still call it Bayakhal, that is, the rich water. All the uncivilised nations in its neighbourhood have a veneration for it, and name it the Holy Sea; and even by the Russians it is not called a lake, but a sea, Baikal More. (Pallas; Georgi; and Ritter's *Asia*.)

BAIKALEAN MOUNTAINS is a name sometimes extended to all the mountain ranges, which inclose the lake of Baikal, and surround and traverse its basin; but as the western chains belong to the Tangnu Oöla and the mountains of Saïansk, and the southern and eastern to the extensive mountain-system of Da-uria or the Kingham Oöla, the name of Baikalean Mountains is with more propriety limited to that range which separates the great lake from the lowlands of Siberia, and unites the mountains of Saïansk with those on the banks of the Upper Angara, which form a part of the Da-urian mountain-system. In this more limited sense the Baikalean Mountains begin at, and are united to, the Mountains of Saïansk, by the mountain-knot which stands between the western extremity of the lake of Baikal (or the Kultuk) and the lake of Kossogool, and terminate with the high range which divides the lower course of the Upper Angara from the tributaries of the Lena river; consequently, they lie between 51° and 57° N. lat. and 103° and 112° E. long. The length of this range may amount to upwards of 500 miles; but the estimate of its breadth will vary according as we reckon only the mountainous part, or take in also its extensive slopes towards the west to the lowlands on the Yenesei River. The mountains occupy, in some places, hardly ten or twelve miles, in others upward of sixty; together with the mountains, the slopes may extend, on an average, to two hundred miles or upwards.

This range is divided in two unequal parts by the Lower Angara, which issuing from the lake of Baikal, in a northern direction, carries its waters to the lowlands, and discharges them, under the name of Upper Tunguska, into the Yenesei. That portion of the mountain-range which lies to the west of the Lower Angara is the lowest, but at the same time exhibits the more alpine aspect. Close to the lake the mountains rise with an extremely steep ascent, and consist of narrow and sharp ridges, which are divided from one another by short and narrow valleys, which are often so deep and close that the rays of the sun cannot penetrate to their bottom. They open southward to the lake and northward to the river Irkut, which runs parallel to the range from W. to E., and falls into the Upper Angara at Irkutsk, after a course of about a hundred miles. The chain which divides the valley of the Irkut from the lake may rise, on an average, to about 1000 feet above the lake, whose surface is 1793 feet above the sea; in some parts it is lower, and in others, especially towards the western extremity, much higher. The chain which runs along the northern side of the valley of the Irkut is still lower, and here the slopes of the Baikalean range unite with those of the mountains of Saïansk. Granite, of grey as well as red colour, is by far the most prevalent component of these chains. It passes in some places into gneiss, and in others is covered with extensive layers of limestone, among which marble of a splendid whiteness occurs. Where the mountains approach the western extremity of the lake they contain Russian glass, a kind of mica, formed in uncommonly large crystals, but not in a state to be of any use. In the neighbourhood lapis lazuli, of all different shades of blue and of great beauty, is met with. The road which leads from Irkutsk to Kiachta passes over the mountains between the western extremity of the lake and the upper valley of the Irkut River.

The *Lower Angara*, issuing from the lake, immediately enters a narrow gorge, which is soon contracted to about half a mile, and is then almost entirely occupied by the river. Here the stream, running in a rocky bed, is extremely swift, and forms almost continual rapids, which render the navigation extremely difficult. Some miles lower down the valley widens to a mile and upwards; the river increases in breadth and runs with less rapidity, till it comes to the town of Irkutsk and joins the Irkut. The distance between the outlet of the Angara and the town of Irkutsk is about forty miles, but in a direct line it may not amount to more than twenty-five miles. The town of Irkutsk is 325 feet below the surface of the lake, being, according to the observations of Erman, only 1468 feet above the level of the sea. The Angara consequently falls, in a course of forty miles, 325 feet, or more than eight feet in each mile between the lake and Irkutsk. Before the Angara reaches Irkutsk it has left behind the granite formation of the mountains, and has entered the sandstone formation, which hence extends to the north and west till it reaches the lowlands of Siberia at Brask on the Lower Angara, and at Krasnoïarsk on the Yenesei. A soft fine-grained sandstone lies on a conglomerate of granite, quartz, and feldspar, the pieces of which are united together by a fine sandstone. The whole region through which this formation prevails is covered with hills of easy ascent, and often grown over with trees and bushes. The country in all this extent lowers gradually towards the north as well as towards the west, and Krasnoïarsk is only 753 feet above the sea. Through this region the course of the Angara is comparatively slow. Below Brask it enters the lowlands, and changes its name to that of Upper Tunguska, where its northern course is changed into a western one, in which direction it continues to its confluence with the Yenesei, receiving not far from it the river Tshuna from the south.

That portion of the Baikalean Mountains, which extends between the lake of Baikal on the east, and the course of the Lower Angara on the west, and contains the sources of the Lena, is much more extensive, but less known. The highest part of it here also skirts the shores of the lake and rises from them abruptly, so that the water at an average is not shed farther from its shores than about ten or twelve miles. The rivers, therefore, which descend from it into the lake, have a short but extremely rapid course, and are full of cataracts. The mountains here rise much higher, probably more than 1500 feet above the surface of the lake: some summits about the sources of the Lena and farther to the north are always covered with snow, and probably are not much short of 5000 feet above the sea: but the height of none of them has been determined. The surface of the upper parts of the mountains is not broken into summits and edges, but either exhibits plains or extremely slow slopes, which are divided from one another by a wide, open, and gradually descending valley. That in which the Lena flows in its upper course is 2270 feet above the sea, and the gradually ascending mountains rise some hundred feet above it. The whole country, therefore, is much higher than that which separates the Angara from the Yenesei, and it sinks at the same time more slowly in its slope to the north and north-east, the surface of the Lena between the mouth of the Olekma and the town of Yakutsk being still as much elevated above the sea as the Yenesei at Krasnoïarsk. On some of the highest summits, as on Mount Altei, not far from the north-western extremity of the lake of Baikal, innumerable low hills are found, which have the form of bee-hives and are composed of loose pieces of rock, thrown in a heap together. The coherence between the pieces is so small, that the hills cannot be ascended without danger, and it is said that sometimes the rambling Tunguses or Burates lose their lives among them.

The Baikalean Mountains contain much iron ore, which is worked in a few places to the north of Irkutsk. Not far from one of these mines are several small lakes, on the surface of which a kind of Epsom salt is formed, the water being so strongly impregnated with the matter, that a pound contains a quarter of an ounce of salt. The salt crystallizes naturally along the shores of the lakes like ice, the centre alone remaining open and liquid. The Burates, who inhabit this country, use this salt to give a flavour to their tea.

In this mountain-region, one of the largest rivers of Siberia, the Lena, has its origin. About 100 miles to the north of Irkutsk is its principal source, which takes at first the name of Ilga, and runs in a northern direction up to

about 57° N. lat., where it declines to the north-east, and is called Kuda. The Kuda is joined by the other great tributary of the Upper Lena, the Kirenga, which rises to the north-east of the source of the Ilga, and, like that river, runs in a longitudinal valley to the north, till it meets the Kuda. The river formed by this junction is called Lena, and runs for many hundred miles to the north-east, receiving from the south the large rivers Witim, Olekma, and Talbatshik. Below the town of Yakutsk the Lena makes a great bend, by which its course is changed from north-east to nearly due north, and receives from the east the Aldan, and from the west the Wilyui. It enters the Northern Ocean after a course of about 2000 miles. (Pallas; Georgi; and Ritter's *Asia*.)

BAIKALITE, a light-green variety of augite, deriving its name from its locality, the mouth of the river Sljumanka, which falls into lake Baikal.

BAIL. In Scotland, antiently, pledges of prosecution and appearance were demanded from litigants no less universally than in England; the judicial writs in both countries being then essentially the same. The writs which originate proceedings in the Court of Session, however, do not usually make mention of pledges; and, accordingly, bail is now little known in the Scotch courts, and, when demanded, it is *substantial* bail. This bail is of two kinds: caution *de judicio sisti*, and caution *de judicato solvendo*—phrases derived from the civil law through the medium of the old French courts, and answering to the forthcoming borgh, and the surety as law will, of the antient common law of Scotland.

In civil cases, the defendant—or as he is called, from the French, *defender*—may be attached or arrested till he find substantial bail, or caution *de judicio sisti*, by two sorts of warrant, *foreign* warrant and *flight* warrant. The foreign warrant is of two kinds, usually called *burgh* warrant and *border* warrant. Of all these the burgh warrant appears the most antient, and from it the others are perhaps derived. It seems also to have a common origin with the *foreign attachment* of London, Bristol, and other towns of England.

The *burgh warrant* is a burghal or civic proceeding directed against foreign debtors. It appears as early as the reign of King David II.; by chapter 36 of whose laws it was enacted, that if any stranger take up goods or necessaries within burgh, and offer to go away leaving the same unpaid, he shall be attached and detained by public warrant. At length, after various determinations of the courts on the subject, which it is not necessary here to detail, the Act 1672, c. 8, was passed, by which the custom is now regulated. The following particulars may be observed on the subject:—The privilege is limited to royal burghs, and to book debts for man's meat, horse meat, abuilziements, and other merchandise due by a stranger to an inhabitant burgess, the plaintiff being the merchant, innkeeper, or stabler from whom the same was gotten, and to whom it was originally addebted, and having no bond from the stranger nor any other security except his own compt-book; and lastly, the remedy is attachment and imprisonment of the stranger, by warrant of the magistrates, on plaint to them made, till he find caution *de judicio sisti* in any process to be brought for payment of the debt within six months. *Border warrants* are granted, on application to any judge ordinary, on the borders between England and Scotland, against debtors whose domicile is on the opposite side, for attaching them till they find like caution *de judicio sisti*. To obtain a *flight warrant*, fugæ warrant, or warant against a debtor as *in meditatione fugæ*, a petition or plaint is made to any judge ordinary by the creditor, setting forth his debt, and his information and belief that the debtor is about to flee the kingdom without paying the same, and praying warrant, the petitioner's oath on the premises being first taken, to bring him before the court for examination. With this application the creditor produces his grounds of debt. He must also make oath to his debt, and to his belief that the debtor means to abscond, justifying such belief by a statement of its grounds. If the circumstances are sufficient, the magistrate or judge then issues his warrant to bring the debtor before him for examination; at which examination the magistrate or judge must also look to any collateral evidence that may offer. If, after due inquiry, it appear that the debtor is about to flee the kingdom in defraud of his creditor, warrant is granted, in terms of the application, to seise and imprison him till he find caution *de judicio sisti*.

In maritime causes the defenders must find caution *de judicio sisti et judicatum solvi*.

The Scots law of bail in cases of crime, if it is not always explicit, is at least shut up within a narrow compass, it being almost altogether contained in the Acts 1701, c. 6, and 39 Geo. III. c. 49. By the former, all crimes not inferring capital punishment are made bailable; and for clearing the method of finding bail, whether before or after imprisonment, it was enacted, that on the application of the accused to the committer, judges of justiciary, or other judge competent for cognition of the crime, and offer to find sufficient caution to appear and answer to any libel that shall be laid against him within six months for the crime whereunto he is charged, under such penalty as shall be modified, the judge or magistrate must, if the crime is bailable, modify the bail within twenty-four hours, and on the party finding the required bail he must be discharged. In the same act the highest bail demandable is laid down; but by 11 Geo. I. c. 26, § 11, the sums so fixed were allowed to be doubled; and by 39 Geo. III. c. 49, the judge or magistrate may extend the bail to 1200*l.* for a nobleman, 600*l.* for a landed gentleman, 300*l.* for any other gentleman, burgess, or householder, and 60*l.* for an inferior person.

BAIL, in civil causes, signifies the sureties who become responsible for the appearance of a defendant, arrested by legal process, to answer to the complaint made against him; and they are so called because antiently the defendant was *baillé*, delivered or committed to the custody of his bail, who were bound to produce him at the time appointed for his appearance. By the statute of 23 Hen. VI. c. 9, the sheriff is compelled to admit to bail all persons arrested by him in any personal action, or because of any indictment of trespass, on reasonable sureties being offered for their appearance: and if he refuse to take sufficient bail when offered, he is liable to an action by the party arrested. Bail were formerly either *common bail* or *special bail*, a distinction which arose thus:—until the commencement of the last century, the defendant was in *all* cases of process against his person actually arrested; and it was then discretionary in the court either to discharge him on *common bail* (that is, fictitious sureties, John Doe and Richard Roe) being entered for his appearance, or to detain him till he found real sureties or *special bail*. But this discretion in the court was abolished by the 12 Geo. I. c. 29, which provided that no person should be held to special bail unless the demand amounted to 10*l.*, over and above costs, which sum is now increased, by the 7th and 8th Geo. IV. c. 71, to 20*l.*; and for less than that sum no debtor can now be arrested and required to give special bail. In all cases where the defendant was not actually arrested, the antient fiction, stating that he was delivered to bail to John Doe and Richard Roe, continued in the Court of King's Bench to be the only mode of his effectually entering an appearance to the suit till the late act for uniformity of process 2 Will. IV. c. 39, s. 2, which provides that, for the future, the appearance of the defendant, in cases where he is not arrested, shall be by entering a memorandum that he either appears in person or by some attorney to the suit instituted by the plaintiff, so that common bail is now entirely abolished.

In considering the subject of special bail we shall explain, 1. In what cases and in what manner special bail are rendered necessary; 2. Who may become special bail; 3. The mode of putting in bail and their justification; 4. The nature and extent of their liability; 5. The mode in which they may be discharged; 6. Proceedings on the bail bond, and against the sheriff.

1. *In what cases special bail is necessary.*—We have seen that by a recent act a defendant can only be arrested and held to special bail (which are convertible terms) where the plaintiff's demand amounts to 20*l.*, over and above costs. To satisfy the court of this fact, an affidavit must be made by the plaintiff or his wife, or some competent third person, stating explicitly the amount and nature of the debt, and deposing positively to its being unpaid. If the claim consist of mere damages for a tort or breach of contract, and not a debt in monies numbered, the defendant cannot be held to bail on the plaintiff's affidavits without a special order of the court or a judge. The courts have been long in the habit of making such orders in actions of special assumpsit, for breach of special contracts, and of trover and detinue for the conversion or detention of the plaintiff's goods. If the plaintiff's demand is for a penalty in a deed

of contract, (e. g. if the debt be 100*l.* and a bond is given for 200*l.*, with a condition that it shall be void if the debt of 100*l.* is paid) he cannot arrest the defendant for the penalty (the 200*l.*), but only for the debt (viz. the 100*l.*) secured by it; and if there are mutual accounts between the plaintiff and the defendant, the balance is the sum for which alone special bail can be required. The defendant cannot be arrested in an action on a penal statute, since it is presumed, till a verdict has passed, that he is innocent of the prohibited offence; nor, in general, can a person be held to bail for a cause of action for which he has been arrested before.

When a plaintiff intends to proceed by holding the defendant to special bail, a *capias* is issued against the defendant, commanding the sheriff to take his person and keep him till he has given bail or made a deposit with the sheriff according to law. The amount of the debt which has been sworn to by the plaintiff is indorsed on the back of the writ as an authority to the sheriff for the amount of bail or deposit which he is to require. The defendant, instead of giving bail, may, under the 43 Geo. III. c. 46, deposit with the sheriff the amount sworn to, with 10*l.* for costs, on receiving which deposit the sheriff is bound to discharge him. If he does not make this deposit under the statute, he either remains in the sheriff's custody, or is discharged on giving an attorney's undertaking to appear according to the requisition of the writ, or on entering into a bail-bond to the sheriff with two or more sufficient sureties, the condition of which is, that the defendant shall duly appear to answer to the plaintiff's suit. These bail to the sheriff are called *bail below*, in contradistinction to the *special bail* or *bail above*, of which this article mainly treats: the condition of the bond thus given by the *bail below* can only be satisfied either by the defendant being actually surrendered before or on the day on which the sheriff is to return the writ, or by *bail above* being duly put in and perfected for the defendant, in the manner which will be afterwards explained.

2. *Who may become bail.*—The general qualification of special bail is that they should be householders or freeholders. A peer of the realm, a member of the House of Commons, a servant in the king's household, liable to be called on to attend the king, cannot become bail, all such persons being exempted from the ordinary process of the courts. It is a rule of the courts that no attorney shall become bail, which rule has been extended to their clerks, and was intended to protect attorneys from the importunities of those who employ them; and no person can be bail who is indemnified for his liability by the defendant's attorney. In order to prevent extortion, no sheriff's officer, bailiff, or person concerned in the execution of process can become bail, which rule has been extended to keepers of prisons and turnkeys: uncertificated bankrupts and insolvent debtors are disqualified from becoming bail by their want of sufficient property; for the same reason, persons who have suffered their parents or near relations to receive parochial relief have been rejected. Foreigners cannot become bail merely in respect of property abroad which is beyond the court's jurisdiction; but it seems that British subjects may become bail in respect of property abroad belonging to such British subjects.

3. *Of the mode of putting in or recording bail and their justification.*—Special bail may be put in by the defendant himself or his attorney in pursuance of his undertaking, or by the sheriff or his bail in order to their own indemnity; and by the 4th and 5th Will. and Mary, c. 4, they may be put in either before a judge in London, before a judge of assize in his circuit, or before a commissioner appointed to take bail by the judges of the several courts under the seal of their court. When bail are put in, they are required to make a formal acknowledgment, called a *recognizance of bail*, that they owe to the plaintiff a sum of money double the amount of the debt which is the subject of the action, or 1000*l.* beyond the debt if it exceed 1000*l.*, to be levied upon their property, unless the defendant, if defeated in the action, pays the debt and costs or renders himself to prison; or, in case he fails to do either, unless they, the bail, pay the costs and money recovered for him, or surrender him to custody. If the plaintiff is dissatisfied with the sufficiency of the bail, he [illegible] to them by entering an exception in the book [illegible] purpose at the judge's chambers, and giving [illegible] in writing to the defendant's attorney. The bail are then called upon to justify or prove their sufficiency, [illegible] to which a two days' notice is given [illegible], (which may either be before a judge in [illegible], or in open court, and in a country cause by affidavits sworn in the country,) specifying the Christian and surnames of the bail, and the street or place and the number (if any) where each bail resides, the object of the notice being to give ample information to the plaintiff and his attorney to enable them to inquire into the circumstances of the bail. In order to justify their sufficiency, each bail is required to swear that he is worth double the sum sworn to by the plaintiff in the action, over and above his debts, and over and above any other sum for which he is bail.

The bail may be opposed on their justification by personal examination as to their sufficiency, or by affidavits disclosing such facts as show some irregularity in the proceedings, or that the bail are really incapable of fulfilling their engagement. The corrupt practice of men hiring themselves out as bail is as old as the time of Charles II., when Butler alludes to it, and it is much to be regretted that it still continues to a considerable extent. Personating another person so as to render him liable as bail, is made a capital felony by the statutes 21 Jac. I. c. 26, and 4th and 5th Will. and Mary, c. 4.

4. *Of the extent of the liability of bail.*—We have seen that the bail enter into a recognizance, that if the defendant is convicted he shall pay the debt, or damages and costs recovered, or render his body to the prison of the court; and therefore if the plaintiff proceed in his action in due time, for the cause of action expressed in the process, and regularly recover judgment, the bail are in general liable to pay the money which he recovers or to render the defendant to prison. Antiently an absurd practice prevailed, that if a man became bail for another, in however small a sum, he was bail for him in all actions brought by the same plaintiff against the same defendant during the same term, were the sums ever so great: while, on the other hand, if the plaintiff declared in his action against the defendant for a greater sum than was expressed in the process, the bail were wholly discharged. It is now however settled, that whatever sum may be declared for or recovered by the plaintiff, the bail remain liable; but they are only liable to the extent of the sum sworn to by the plaintiff, and the costs of suit, not exceeding in the whole the amount of their recognizance.

5. *The modes in which the bail are discharged.*—The bail are discharged either by performing the recognizance, or by some matters which operate to excuse them from such performance. The most ordinary mode of performance is by rendering the defendant to prison. This render may be made either by bail put in by the defendant himself, or by bail put in by the sheriff, or by the bail to the sheriff for their own indemnity; and as the only object is the security of the defendant's person, bail merely put in and who have not justified, are sufficient for the purpose of surrendering him to custody. The liability of the bail on the recognizance attaches, according to its terms, on conviction of the defendant—that is, on final judgment being entered against him; but as the recognizance is in the alternative, they are not immediately fixed with the debt, &c., but have a certain time allowed by the practice of the courts, within which, even after judgment, they may discharge themselves by rendering the defendant's person; the length of which interval is determined by the mode of proceeding by which the plaintiff proceeds against the bail on their recognizance.

As to the special circumstances which operate to relieve the bail from their obligation, the general rule is, that wherever by the act of God or by the act of the law a total impossibility or temporary impracticability to render the defendant has been occasioned, the courts will relieve the bail from the unforeseen consequences of having become bound for a party whose condition is so changed as to put it out of their power to perform the alternative of their obligation, without any default of their own. Thus, if the principal die before the return of the writ of execution (the *capias ad satisfaciendum*) against him, or if before that time he is made a peer of the realm, or become a member of the House of Commons; or if he become bankrupt and obtain his certificate, or be discharged under an insolvent act; or if he be sentenced to transportation, or be impressed into the King's service, or be sent out of the kingdom under an alien act; or if the plaintiff is guilty of some default, as if he do not proceed in due time or in proper manner against the defendant; or if he take a security from the defendant, and thereby give him time without consent of the bail,—in these cases the bail are excused from performance of their [illegible] and will be relieved by

the courts. In cases where there is not a total impossibility of rendering the bail, but only a temporary impracticability, the courts will not absolutely discharge the bail, but will assist them in other modes; as by issuing a *habeas corpus*, in order to bring up the defendant to be rendered in cases where he is in legal custody for crime, or by enlarging the time for making the render.

6. *Of proceedings on the bail-bond and against the sheriff.*—We have seen, that when the defendant is discharged from arrest, he in most cases enters into a bail-bond with sureties to the sheriff, the condition of which bond is that the defendant appears at the proper time to answer to the plaintiff's action. If special bail are not put in and justified in proper time, according to the rules of practice of the court, this bond becomes forfeited, and the plaintiff then may either proceed against the sheriff by calling upon him to bring in the defendant's body according to the command of the writ; or, if he is satisfied with the bail to the sheriff, he may cause the sheriff to assign over to him the bail-bond, under the statute 4 and 5 Ann, c. 16, s. 20, and may sue the defendant and his bail on the bond. The plaintiff, by adopting this last course, in general discharges the sheriff from his liability; and therefore it is only resorted to when the sheriff's bail are of undoubted sufficiency. If the plaintiff's proceedings on the bail-bond are *irregular*, they will (like other proceedings) be set aside with costs. But the courts will also stay such proceedings in many cases, even when they are *regular;* the action on the bail-bond being in fact only a subsidiary proceeding for enforcing the general object of bail. In cases where there is really any defence to the original action—any fair question to try—it is obvious that this can only be properly and satisfactorily tried in that action, and not in the collateral action on the bail-bond. Therefore, if the defendant makes application to the court with a proper affidavit of *merits* (*i. e.* a good and lawful defence) in the original action, the courts will in general stay proceedings on the bail-bond, so as to give an opportunity for a trial in the original action.

If there is no bail-bond, or if the plaintiff is dissatisfied with the sheriff's bail, he takes proceedings against the sheriff, who is responsible for the due execution of the writ. The plaintiff therefore obtains a rule or order of the court calling upon him to make a return to the writ which must, by the 20 Geo. II. c. 37, s. 2, be done before six months after the expiration of his office; and the rule must be served personally on the sheriff or his under-sheriff. If there is no return, it is a contempt of court, and an attachment against the sheriff will be granted. To the rule to return the writ the sheriff may make such return as is consistent with the fact, either that the defendant is not found in his bailiwick, or that he has taken him (*cepi corpus*) and has him ready; or that he is sick, or that he has escaped, or has been rescued; or that he has been discharged on making a deposit with the sheriff, under the 43 Geo. III. c. 46. s. 2, &c., &c. If the return is false, the sheriff is liable to an action. If he return *cepi corpus et paratum habeo*, and if special bail are not put in and perfected in due time, the plaintiff may either take an assignment of the bail-bond, and proceed thereon against the bail, or he may obtain an order of the court requiring the sheriff to bring in the body or person of the defendant. If the plaintiff adopt the latter course, the sheriff must either bring the defendant personally into court, or he must put in and perfect bail within the time allowed by the rule. If he fail in this it is a contempt of court, for which an attachment will issue on an affidavit that the rule has been duly served, and that no bail is put in. As these proceedings against the sheriff are (like the proceedings on the bail-bond) regarded by the courts as only intended to enforce the attainment of sufficient bail, the courts will also in this case extend their indulgence to the sheriff, and stay the proceedings against him, and let in a trial on the merits for the benefit of the sheriff, or the bail, or the defendant, on good bail being put in and perfected.

The rules on the subject of bail, which were formerly very complicated, and different in each separate court, have been of late much simplified by rules of court; and by the statute above cited, for uniformity of process, which was introduced by Lord Tenterden.

A report has been made by the commissioners for inquiring into the courts of Common Law recommending the abolition of arrest for debt except in some few cases. As to these excepted cases, the above provisions, respecting bail, will probably remain in substance nearly unchanged. (See Tidd's *Practice*, edit. 9; Jervis's *Rules of Court;* Bacon's *Abridgment*, edit. 7, tit. *Bail.*)

Bail in Error are sureties required to be given by a defendant at common law who sues out a writ of error to reverse a judgment which has passed against him; and the condition of the recognizance into which they enter is, that the party suing out the writ of error shall prosecute it with effect, and if the judgment be affirmed, shall satisfy the debt and costs recovered, together with all such costs and damages as are awarded by reason of the delay of execution occasioned by the writ of error, or else that the bail shall do it for him. By the common law, no bail in error was required; and a defendant might therefore delay a plaintiff of his execution without giving any security to prosecute his writ of error, or to pay the debt and costs if the writ failed. This inconvenience was only partially remedied by the statute 3 Jac. I., c. 8, which required bail in error only in certain particular actions, and by the 13th Car. II., stat. ii., c. 2, and the 16th and 17th Car. II., c. 8, which rendered it necessary only where the judgment was after verdict, and not in cases where the defendant suffered judgment by default. And accordingly it became the common practice of defendants sued upon bills of exchange and other simple contracts, and having no real defence, to delay the plaintiff by suffering judgment by default, and then by bringing a writ of error, in which case they were under no obligation to find bail. These delays have been effectually suppressed by a late salutary act, 6th Geo. IV., c. 96, s. 1, introduced by Sir Robert Peel, which requires bail on every writ of error after judgment for the plaintiff, whether by default or after verdict, unless it is otherwise ordered by the court or one of its judges. The bail should be put in within four days after delivery of the writ to the Clerk of the Errors, otherwise the plaintiff in the original action may treat the writ of error as ineffectual, and proceed to take out execution. The recognizance is taken in double the sum recovered by the judgment. The bail must justify, if required, and may be opposed by the plaintiff, in the same manner as has been described with respect to bail for the defendant's appearance in the original action. But as the engagement is not alternative, like that of the bail in the original action, but absolute to pay the sum recovered and costs, bail in error cannot discharge themselves by surrendering their principal; nor are they entitled to relief if their principal becomes bankrupt. (See Tidd's *Practice*, ch. 44 (9th ed.)

Bail in Criminal Cases are the sureties given to the crown by a party accused of a crime, and who is allowed by a court or magistrate to be at liberty till trial, on giving security for his due appearance. By the common law, all accused persons, even though charged with heinous felonies, were allowed the privilege of bail, till the crime of murder, and afterwards treason, and other felonies, were excepted by statute. Further regulations were introduced on the subject by statutes of Henry VI., and of Philip and Mary, which contained many nice distinctions as to the offences which were bailable, and those which were not so. But these statutes are now repealed by a general law, the 7th of Geo. IV., c. 64, s. 1, introduced by Sir Robert Peel, which precisely defines and marks out the powers and duties of justices of the peace as to bailing parties charged before them with *felony*. By this statute, where any person is taken on a charge or suspicion of felony before one or more justices of the peace, and the charge is supported by positive and credible evidence of the fact, or by such evidence as, if not explained or contradicted, shall, in the opinion of the justice or justices, raise a strong presumption of the guilt of the person charged, such person shall be committed to prison to take his trial. But if only *one justice* is present, and the whole evidence given before him shall be such as neither to raise a strong presumption of guilt, nor to warrant the dismissal of the charge, such justice shall order the party to be detained till he is taken before two justices at the least; and where such two justices, or any two justices before whom a party may be charged in the first instance, shall deem the evidence not such as to raise a strong presumption of guilt, and to require the party's committal; or if such evidence shall be adduced on behalf of the person charged as shall, in the opinion of the justices, weaken the presumption of his guilt, but there shall notwithstanding appear to them sufficient ground for judicial inquiry, the party charged shall be admitted to bail

by such two justices. The justices, however, are not required to hear evidence on behalf of the party charged, unless it appear to them conducive to the ends of justice so to do. Before they admit to bail, or commit any person charged with felony, they are bound to take the examination of such person, and the information of those who know the circumstances, and to put the same into writing, and to subscribe their names to the bailment and examinations, and deliver them to the proper officer of the court in which the trial is to be, before or at the opening of the court. By the effect of this statute, the power of a *single* justice of the peace to take bail for felony is now done away, and such bail can only be taken by two justices either after an examination by one justice, or on an original examination by themselves. With respect to *misdemeanors*, parties charged therewith are in general entitled to be admitted to bail, which may be taken by one justice as well as two or more. By the third section of the above act, any justice, on taking bail, or committing a person for misdemeanor, is required to take the examinations in writing, and certify the bailment, and deliver the examinations and recognizances to the proper officer of the court before trial, in the same manner as in cases of felony.

The abovementioned act applies only to the taking of bail by justices of the peace, and has not in any way affected the authority of the superior courts of law to admit prisoners to bail. The courts of Common Pleas and Exchequer, at any time during term, and the Court of Chancery, either in term or vacation, may, by the common law, award a *habeas corpus* to bring up any person committed for a crime under the degree of felony or treason, and may discharge him, if it appear that the commitment was illegal, or bail him if it appear doubtful. The authority of the chancery is said, indeed, to extend to cases of felony; that of the other two courts is confined to misdemeanors. The Court of King's Bench has a more extensive authority; that court, or any one of its judges, in time of vacation, may bail a party committed for any crime whatever, even for treason or murder; and they will in general exercise this authority in cases not capital, and also in capital cases, where the circumstances raise a presumption of the party's innocence. But neither the Court of King's Bench nor any other court can bail prisoners in execution, or suffering imprisonment under the sentence of a competent court for crime, or for a contempt of its authority, unless indeed it is plainly made to appear to that court that they are not guilty of the offence, or unless a prisoner is in danger of losing his life from the effects of continued confinement. And it seems now to be considered as settled that the Court of King's Bench has no authority to admit to bail a person committed by either House of Parliament so long as the Parliament is sitting; though, when the session is at an end, it seems admitted that it possesses such power. No person can be bailed for felony with less than two sureties, and it is usual with the Court of King's Bench to require four. The sum in which the sureties are bound ought never to be less than 40*l*. in case of a capital crime; but it is discretionary in the court or magistrate to require a higher amount, having regard to the circumstances and rank of the prisoner, and the nature of the offence. Care must however be taken not to require such excessive bail as in effect to amount to a denial of bail, which is one of the grievances complained of by the Bill of Rights (1 William and Mary, st. II., c. 2), and is prohibited by that act.

By the 1st & 2nd Geo. IV., c. 218 (the Metropolis Police Act), it is lawful for any constable or headborough in London attending at any watchhouse to take bail from persons charged with petty misdemeanors, without warrant of a justice, and such recognizances shall be of equal obligation as if taken by a justice of the peace. (See Blackstone's *Comm.*, b. iv., c. 22, Bacon's *Abridgment*, tit. 'Bail in Criminal Cases,' 7th edit.)

BAILIFF signifies a keeper or superintendent, and is derived by us from the French word *bailli*, which appears to come from *ballivus*, and that from *bagalus*, the Latin word signifying generally a governor, tutor, or superintendent, and also designating an officer at Constantinople who had the education and care of the Greek emperor's sons. (See Du Cange, *Glossary*.) All the various officers who are called by this name, though differing as to the nature of their employments, seem to have some kind of keeping or superintendence entrusted to them by their superior. The sheriff is called the King's bailiff, and his county is his bailiwick. The keeper of Dover Castle is called the bailiff; and the chief magistrates of many antient corporations in England have this name. But the chief functionaries to whom the name is applied, are the bailiffs of sheriffs, the bailiffs of liberties or franchises, and the bailiffs of lords of manors.

1. *Bailiffs of sheriffs* were antiently appointed in every hundred, to execute all process directed to the sheriff, to collect the King's fines and fee-farm rents, and to attend the justices of assize and gaol delivery: they are called in the old books bailiffs errant. There is now a certain number of bailiffs appointed by the sheriff in his county or bailiwick, who are commonly called *bound* bailiffs, from their entering into a bond to the sheriff in a considerable penalty for their due and proper execution of all process which the sheriff entrusts to them to execute, whether against the person or the goods of individuals. These are called *common* bailiffs; but the sheriff may and often does, at the request of the suitor or otherwise, entrust the execution of process to a person named merely *pro hâc vice*, who is called a *special* bailiff. The bailiff derives his authority from a warrant under the hand and seal of the sheriff, and he cannot lawfully arrest a party till he receives such warrant. It is a contempt of the court from which process issues, to hinder the bailiff in executing it; and when a party is taken by the bailiff, the law considers him in the custody of the sheriff. An arrest may be made by the bailiff's follower; but the bailiff must in such case be at hand and acting in the arrest. The bailiff is forbidden by the Lord's Day Act, 29 Car. II c. 7, to execute process on Sunday; and he is not authorized to break open an outer door to make an arrest under civil process, or to seize goods; but if the outer door is open, he may, in general, break open inner doors in execution of the process. If a bailiff misdemean himself grossly in the execution of process, as if he use unnecessary violence or force, or extort money from prisoners, or embezzle money levied, he will be punished by attachment from the court from whence the process issues.

2. *The bailiff of a franchise or liberty* is one who has the same authority granted to him by the lord of a liberty as the sheriff's bailiff antiently had by the sheriff. These liberties are exclusive jurisdictions which still exist in some parts of the kingdom (as the honour of Pontefract, in Yorkshire, the liberty of Gower in Gloucestershire, and adjoining counties) in which the King's writ could not formerly be executed by the sheriff, but only by the lord of the franchise or his bailiff. These districts proving inconvenient, the statute of Westminster the 2d., c. 29, provided, that if the bailiff, when commanded to execute a writ within the franchise, gave no answer, a writ, with a clause of *non omittas*, should issue, authorizing and commanding the sheriff himself to enter the franchise and execute the writ; and it is now the practice in every case to insert this clause in the writ, in the first instance, which enables the sheriff at once to execute it in the franchise. If, however, the party suing out the writ neglect to insert this clause, the sheriff is not *bound* to enter the franchise; though, if he do enter it, the execution will not be invalid: but if a sheriff's bailiff, in executing such a writ within a franchise, is resisted by the party to be taken, and is killed, it is not murder; for the bailiff is committing a trespass in consequence of the clause of *non omittas* not being inserted in the writ.

3. *Bailiffs of manors* are stewards or agents appointed by the lord (generally by an authority under seal) to superintend the manor; collect fines and quit-rents; inspect the buildings; order repairs; cut down trees; impound cattle trespassing; take an account of wastes, spoils, and misdemeanors in the woods and demesne lands; and do other acts for the lord's interest. Such a bailiff can bind his lord by acts which are for his benefit, but not by such as are to his prejudice without the lord's special authority.

(See Bacon's *Abridgment*, tit. Bailiff, 7th ed.; Tomline's *Law Dictionary*, same title.)

BAILIWICK, from the French *bailli*, and the Saxon *pic* (*vicus*), the street, dwelling-place, or district of the bailiff, signifies either a county which is the bailiwick of the sheriff, as bailiff of the king, and within which his jurisdiction and his authority to execute process extend; or it signifies the particular liberty or franchise of some lord who has an exclusive authority within its limits to act as the sheriff does within the county. [See BAILIFF, SHERIFF, BAIL.]

BAILLEUL, a town in France, in the department of Nord. It lies on the road between Lille and Dunkerque, seventeen miles from Lille and twenty-nine from Dunkerque. It is 157 miles from Paris, N. of N. by E., very near the Belgian frontier, on the little river Bellebec, which flows into the Lys, a tributary of the Scheldt. It is a busy manufacturing place, with a population, in 1832, of 9823 for the commune, and 6015 for the town itself. Twist, tape, lace, cloth, linen, towels, and napkins, are among the productions of its industrious population; also pottery, earthenware, and salt. Excellent cheese is made in the neighbourhood. This town has suffered much by fire, having been burned, by accident or by an enemy, five or six times: the last time was in 1681. It was once fortified, but is now an open town: 50° 45′ N. lat., 2° 44′ E. long.

Several villages bear the name of Bailleul; there is one town (*bourg*) so called in the department of Sarthe, but it is a place of no importance.

BAILLIAGE, a French term equivalent with bailiwick, a district or portion of territory under the jurisdiction of an officer called a bailiff. This term was more especially appropriated to certain sub-governments of Switzerland, which at the time Coxe wrote his travels were of two sorts: the one consisting of certain districts into which all the aristocratical cantons were divided, and over which a particular officer called a bailiff was appointed by the government, to which he was accountable for his administration: the other composed of territories which did not belong to the cantons, but were subject to two or more of them, who by turns appointed a bailiff. The officer of this last sort of bailliage, when not restrained by the peculiar privileges of certain districts, had the care of the police, and under limitation the jurisdiction in civil and criminal causes. He also enjoyed a stated revenue, arising in different places from various duties and taxes. In case of exaction or mal-administration an appeal lay to the cantons to which the particular bailliage belonged. (Coxe's *Trav. in Switz.*, 4to. Lond. 1774, vol. i. p. 30.) These latter bailliages anciently formed part of the Milanese. Their names were Mendrisio, Balerna, Locarno, Lugano and Val-Maggia. Uri, Schweitz, and Underwalden possessed the three bailliages, Bellinzona, Riviera, and Val Brenna, all which had also been dismembered from the Milanese. The chief of these bailliages were ceded to the cantons, in 1512, by Maximilian Sforza, who was raised to the ducal throne by the Swiss, after they had expelled the troops of Louis XII. and taken possession of the duchy. Francis I., successor of Louis, having recovered the Milanese, and secured his conquest by the victory of Marignano, purchased the friendship of the cantons by confirming their right to the ceded territory, a right which the subsequent Dukes of Milan were too prudent to dispute. They were finally confirmed by the house of Austria. (Ibid., vol. iii., pp. 170, 418.) In 1727, the Italian bailiwicks were surrendered, with the cantons of Switzerland, to the French. (Planta's *Hist. of the Helvet. Confederacy*, 8vo. edit. vol. iii., p. 380.)

In 1802, when Bonaparte, as first consul of France, remodelled the constitution of Switzerland, and increased the antient number of its cantons to eighteen, that of Tessin was formed out of the Italian bailiwicks; an arrangement which was afterwards confirmed by the treaty of Paris, 30th of May, 1814, and recognised in the Helvetic Diet of 19th March, 1815. (See the *Moniteurs* for 20th Feb. 1803 and 22d May, 1815.)

BAILLIE, MATTHEW, an eminent anatomist and physician, was born in Scotland on the 27th of October, 1761, at the manse (or parsonage) of Shotts, in Lanarkshire. His father was the Rev. James Baillie, at that time clergyman of the parish of Shotts, and his mother, Dorothea Hunter, sister of the celebrated anatomists William and John Hunter. Soon after his birth his father was removed to the charge of the church of Bothwell, and subsequently to that of Hamilton, at the school of which place young Baillie acquired a character both for industry and talent. His father having been elected professor of divinity in the University of Glasgow, his education was carried on in that place. During the three years of his attendance there, the first two were devoted to the Latin and Greek classics, and the third to mathematics, to which he applied diligently; at the same time he attended logic, and the class of moral philosophy, at that time taught by Dr. Reid.

Though originally inclined to adopt his father's profession, or to enter the bar, his uncle, Dr. William Hunter, held out such inducements as determined him to choose the medical profession. This celebrated individual, at that time the most eminent teacher of anatomy in London, was desirous of superintending the education of his nephew in person, a scheme which was only partially practicable, as, in order to obtain a degree of doctor of medicine from one of the English universities, it was necessary that part of his time should be spent at Oxford or Cambridge. Measures were accordingly taken at Glasgow to procure for him an exhibition to Baliol College, Oxford, which is in the gift of the professors of the University of Glasgow. The loss of his father at this time, and the consequent diminution of the family income, rendered such assistance very desirable. It was at last obtained, and in March, 1779, he intimated by letter to his uncle, that he was ready to proceed to Oxford. This letter, asking advice from his uncle as to his studies and conduct on his first entrance into life, is highly creditable to him: it displays good sense, correct principle, and a degree of tender feeling towards his mother and sisters, which he continued to exhibit throughout the whole of his and their lives.

On his way to Oxford he visited London, and for the first time saw his distinguished uncle, from whom he received directions respecting his studies, which he prosecuted for an entire year at Oxford. But subsequently he visited the university only at *term* time, spending all the intervening periods in London with his uncles, whose lectures he attended, as well as those of other eminent teachers in other departments of medicine. Two years after he had commenced his studies in London, he became a teacher in his uncle's anatomical theatre in Great Windmill Street, in the capacity of demonstrator. About a year after this time Dr. William Hunter died, and bequeathed to his nephew the use of his splendid museum, his anatomical theatre and house in Great Windmill Street, as well as a small estate in Scotland (which Baillie generously gave up to his uncle John Hunter) and an annuity of 100*l.* a year. Dr. Hunter, a short time before his death, told his nephew, 'that it was his intention to leave him but little money, as he had derived too much pleasure from making his own fortune to deprive him of doing the same.'

The eminence of his uncles proved a spur to Baillie to sustain the character of the family. He followed their example of indefatigable industry and unremitting diligence in investigating the healthy structure of the human body and its functions, as well as the deviations from this in the various morbid structures which are presented in the dissecting-room. The knowledge thus acquired proved the foundation of his future usefulness and fame. From his own experience he always contended for the necessity of a minute acquaintance with anatomy, for the successful practice of medicine. He also maintained the importance of an acquaintance with physiology, or a knowledge of the functions of the different organs of the body. 'It is impossible,' he states in his introductory lecture, 'for men to examine the structure of an animal body, without reasoning about the use of the several parts; and it would be a very unprofitable pursuit to attend to the one, except as being subservient to the other.'

In 1785, two years after William Hunter's death, Baillie, in conjunction with Mr. Cruickshanks, gave his first course of anatomical lectures: thus in his twenty-fifth year taking upon himself the task of supplying the place of one whose talents as a lecturer were of the first rank. But so well was he qualified for the office, that the number of pupils at the school did not diminish. In his introductory lectures he seems to have anticipated the now universally received opinion, that the vital actions of the body, morbid as well as healthy, are carried on in the extreme vessels, or more minute tissues of the organs. 'It must have occurred,' he observes, 'whenever men were disposed to reason on the subject, that the actions of an animal body are not to be referred to the larger parts, but to the smaller, of which these are composed. Hence the examination of minute structure is evidently more connected with physiology, and if ever the latter is to be known at all, it must be through the medium of the former.' He took every opportunity of preserving morbid structure, and thus formed a museum, inferior indeed to that of the Hunters', but of great value, which now enriches the College of Physicians of London. This collection was liberally presented to that body by Dr. Baillie during his life-time, along with 400*l.* to keep it in a

proper state of preservation To the same body, in his will, he bequeathed his medical library

In 1787, though only a Bachelor of Medicine, he was appointed physician to St George's Hospital, and two years afterwards he received his degree of Doctor of Medicine from the University of Oxford, upon which he became a fellow of the College of Physicians In 1789 he married Sophia, the second daughter of Dr Denman, at that time a very eminent accoucheur in London.

Previous to his appointment to St George's Hospital, he had enjoyed few opportunities of acquiring a knowledge of the practical part of his profession but his assiduity and natural powers of observation, aided by his clear perception and correct reasoning powers, soon enabled him not only to become equal to others, but highly distinguished for his power of discriminating diseases in the living body or in what is technically termed the *diagnosis* of diseases Respecting his attainments in this way, he spoke with great modesty and truth 'I know better perhaps than any other man from my knowledge of anatomy how to discover a disease but when I have done so *I do not know better how to cure it* This however was scarcely possible for a knowledge of the particular disease with which the physician has to contend is the first step towards its correct treatment he therefore who knows precisely with what disease a patient is afflicted, is most likely to succeed in curing it

To render the collections of his uncles, as well as his own useful to the public, he undertook an examination of them and in 1795 published with his *Morbid Anatomy*, 'a work which, whether we consider the subject or the manner in which it is treated has been justly estimated as one of the most practically useful and valuable acquisitions to medical science (Wardrop) It was soon translated into French (two translations) and Italian and into German by Professor Soemmering About four years after the appearance of this work he began to publish engravings for its illustration these as well as the work itself will remain a lasting memorial of the zeal the industry and the talents of their author He also published various papers in the *Transactions of the Royal Society* (of which he was a fellow) and in different medical periodicals these are now collected in the edition of his works edited by Mr Wardrop He likewise edited William Hunter's work on the *Gravid Uterus* (left in MS) to which he made some additions

To a second edition published in 1797, of his *Morbid Anatomy* he added the 'Symptoms of the different morbid lesions described in it so far as they were known but scarcely anything further though he had up to this time been in the habit of keeping an account of the dissections of interesting cases some of which were afterwards published in the collected edition of his works In 1799 he resigned his office of physician to St George's Hospital and also his anatomical lectures his time being entirely occupied in the practice of his profession

The progress of a physician is proverbially slow and though no man laboured more incessantly than Dr Baillie and no one ever commenced under more favourable circumstances he was nearly forty years of age before he found himself fully established in practice His progress from this time was rapid and his success complete This was much promoted by his anatomical knowledge and also by his being known as the relative of such distinguished men as the Hunters his marriage with the daughter of Dr Denman greatly assisted in introducing him to practice Dr Pitcairn, having been obliged to relinquish his practice and retire to a warmer climate, recommended Dr Baillie to his patients and though Dr Pitcairn was able to return partially to discharge the duties of his profession the death, which occurred in 1809, of this able physician made a most favourable opening for Baillie On this accession of practice Dr Baillie removed from Windmill Street to Grosvenor Street

Dr Baillie added to his great facility in diagnosis a knowledge of the precise effects and extent of the powers of medicines He excelled in the art of delivering his opinion on a case, being concise clear and practical, his language simple, and remarkably free from technicalities His manner was natural and unassuming, yet decided and impressive. He was the same to all persons and on all occasions 'his benevolent principles led him to disclaim all distinctions in his mode of addressing the sick.'

He was remarkable for the considerate attention which he paid to the feelings of his professional brethren, more particularly to the younger members of the profession The consequence was that he never lessened the confidence of the patient in his ordinary attendant, while he himself acquired the good will and esteem of all whom he met in consultation It was one of his characteristic traits to be remarkably punctual to the time appointed for consultation This might naturally be expected from a man who knew so well the value of time, and whose professional duties required from him sixteen hours a day for the space of many years 'He used to narrate, in the most open manner, the history of his own life, and to describe to the younger members of the profession the rocks and shoals which he had met with, contrasting these with his long-looked for but ultimate success He pointed out the necessity of competency, of integrity, and of industry, and the slow progress of the most eminent men who had gone before them, and, on the other hand, the transitory fame of all those who had ever attempted to gain professional reputation as if by storm

Amid so much that was excellent in his character, a regard for impartiality and truth requires us to state that, during the period when he was most fully occupied, he frequently exhibited an irritability of temper which perhaps caused more regret to himself than annoyance to others for any display of it was followed by sincere compunction and efforts to make reparation to those who had suffered from it It is difficult to say whether, in cases where he considered remuneration for his services beyond the means of the patient his generosity, or the delicacy with which he carried it into effect was the greatest His refined regard for the feelings of the objects of his kindness greatly enhanced its value

His physical frame was feeble, compared with his mental powers He was under the middle stature, and of rather a slender form His countenance was marked with a great deal of sagacity and penetration He continued in the unremitting exercise (with a few occasional exceptions) of his profession till the spring of the year 1823 when he became affected with chronic inflammation of the trachea (or windpipe) for which he went to Tunbridge, and afterwards to his estate in Gloucestershire where he died on the 23rd of September 1823 in the 63rd year of his age

Dr Baillie was frequently called upon to render his professional services to members of the royal family The Princess Amelia George III (on whom he attended for ten years) and the Princess Charlotte of Wales appointed him their physician His friends erected a monument to him with a suitable inscription in Westminster Abbey

The mental training which he underwent, having the benefit of commencing his education under such able instructors as Professors Jardine and Reid of Glasgow and having his medical studies superintended by Dr William Hunter was admirably calculated to produce such a character as Dr Baillie The advantages which he enjoyed by his connexions with the Hunters and Dr Denman may be regarded by some as the causes of his eminent success But perhaps it would be a more just view of his career if we were to say that these very aids would have proved ruinous, by inducing a fatal reliance on them alone, to any person not possessed of such resolution and self-dependence as Dr Baillie It was no unmerited eulogium which was passed upon him by his distinguished contemporary Sir H Davy, when he said of him 'his highest ambition was to be considered as an enlightened and honourable physician his greatest pleasure appeared to be in promoting the happiness and welfare of others

His works have been published in 2 vols 8vo, London, 1825 edited by Mr Waidrop, who has prefixed a sketch of his life, from which most of the above particulars are taken There is, besides his *Engravings of Morbid Anatomy*, 1 vol 4to 2nd edit London, 1805, a posthumous volume, of which only 150 copies were (according to directions in his will) printed, but not published It contains his two introductory lectures to his anatomical class, 1785, his Gulstonian lectures on the nervous system, delivered before the College of Physicians, in 1794, and some brief observations on a number of diseases, in which he communicates the result of his experience, after the manner of Heberden's *Commentaries* These are marked by the same good sense and just observations which characterize his other writings.

Under the head 'Of some Affections of the Stomach,' he combats the popular opinion that young meats, such as veal

and chicken, and, above all, bacon, are easy of digestion, and fit for delicate stomachs or convalescents 'Most commonly, animal food that is very fat, or much salted, or fried, is difficult of digestion, and should either be eaten very sparingly, or should be altogether avoided Young and white animal food is in general more difficult of digestion than what is brown and of middle age (Baillie's *Posthumous Works*, p 189)

BAILLY JEAN SYLVAIN, was born at Paris, September 15, 1736 His father and grandfather were artists of some reputation, and the former was attached to the court as *garde des tableaux*, and was besides the author of many forgotten poems, principally parodies The subject of our memoir applied himself early to both the paternal pursuits and composed some tragedies, which Lanoue (a successful writer both in tragedy and comedy) 'approved of but without recommending any further attempts' that is, civilly hinted were good for nothing

An accidental acquaintance formed with Lacaille at the house of a common friend, was Bailly's first motive to attach himself to astronomy The first fruits of the instruction which he received from this great master were some lunar observations, presented to the Academy in 1762 He was received into this body in 1763 and had previously made one among the various calculations of the orbit of the comet of 1759 In 1763 he reduced Lacaille's observations of zodiacal stars, and began to turn his attention to the theory of the satellites of Jupiter This was the subject of the prize offered by the Academy for 1764 and Bailly by applying the formulæ which Clairaut had employed in his lunar theory was enabled to deduce from the hypothesis of gravitation several of the inequalities observed by Bradley and Wargentin The prize was gained by Lagrange who by a new and more powerful analysis of his own carried the theory much further but the attempt of Bailly immediately placed him among the successors of Newton His essay on *la Théorie des Satellites de Jupiter* was published in 1766 In 1771 he wrote a curious and original paper on the light of the satellites of Jupiter which he had measured by finding how much the object-glass of a telescope must be diminished in order to make these bodies disappear In 1775 he published the first part of his history of astronomy of which we shall presently speak The whole of this publication was completed in 1787 by the appearance of his *Indian Astronomy* and the supplementary works which at different times came from his pen were *Lettres sur l'Atlantide* 1779 *Lettres sur l'Origine des Sciences* 1777 *Essai sur les Fables et sur leur Histoire* written in 1781 & published posthumously in 1799 Their author was a candidate for the secretaryship of the Academy in 1771, at which time Condorcet was preferred by the exertions of D'Alembert But Bailly was elected to the *Académie Française* in 1784 and to the *Académie des Inscriptions* &c in 1785 he and Fontenelle being the only two instances of Frenchmen who belonged at once to all the three academies and himself the only academician whose bust adorned their library during the life of the original

We shall complete the references to the scientific life of Bailly by mentioning his reports to the Academy of Sciences on animal magnetism (1781), and on the plan of a new *Hôtel Dieu* (1786), as well as his *éloges* of Charles V, Molière, Corneille, Lacaille Leibnitz Cook, and Gresset

The first tendency of both the French revolutions has been to bring forward men of letters to a prominent place in the management of public affairs At the election of the States General in 1789, Bailly was the first chosen for Paris He had previously acted as secretary to the assembled body of electors, and their deliberations have been published in three octavo volumes Lalande says, 'his talent for writing was well known, the interesting reports which he had made on animal magnetism and on the new hospital had caused a sensation among the public his austere and rational character had given him a high moral reputation He was chosen president of the *Tiers état* (June 17, 1789), the day after that body declared itself a national assembly He held this office during the memorable sittings at the *Jeu de Paume* on the 20th, and at the church of St Louis on the 22d during the personal attempt of the king to disperse the assembly, at the consolidation of the three orders on the 27th, and till July 2d It might be the national representatives felt that their president had not the energy required by the state of things the short but decisive answer to the king's message to disperse came from Mirabeau, not from Bailly But he appears to have been their organ of conciliation in the previous attempt to unite the three orders, and his address to the clergy on their joining the *Tiers état* (which they did before the nobles on the 22d), is a skilful compliment His conduct pleased the people of Paris, who elected him mayor of their city on the 15th of July, being the time when the king returned to it after the fall of the Bastile On presenting the keys of the town to Louis XVI, the new mayor thus addressed him 'Sire, I bring your Majesty the keys of your good town of Paris, they are the same which were presented to Henry IV, he had regained (*reconquis*) his people here the people has regained its king' At this period Mirabeau, Lafayette and Bailly were the three most marked men of the revolution and Mignet calls the first the tribune, the second the general and the third the magistrate, of the people of Paris.

During the period of his mayoralty, no accession to any violent measure distinguished Bailly's conduct the most remarkable proposition he made to the Assembly was that for the celebration of the taking of the Bastille (June 5, 1790) He completely satisfied neither extreme, being charged with devotion to and contempt of the royal cause, by the two parties We must pass over the events of his life until we come to that of the 17th of July 1791 The attempt at escape on the part of the king had irritated the republican party and the gathering of foreign troops on the frontier had lent fuel to their violence A tumultuous assembly, headed by all the chiefs of the Jacobins (as they were afterwards called) assembled in the Champ de Mars to petition for the dethronement of the king Two invalids whom they took for spies were massacred and their heads placed on pikes The insurrection became alarming Lafayette came again to the Champ de Mars at the head of 1200 National Guards Bailly accompanied him and caused the *drapeau rouge* to be unfurled The multitude was summoned in the manner required by law but would not retire, and crying *A bas le drapeau rouge!* assailed the Guard with stones Lafayette caused them to fire in the air, the crowd was not intimidated but recommenced its attack, then forced by the obstinacy of the rioters Lafayette ordered them to fire again but this discharge was real and murderous The frightened multitude fled leaving many dead on the field, the riot ceased order was restored, but blood had flowed and the people never forgave either Lafayette or Bailly the stern necessity to which itself had reduced them It was a real combat in which the republicans not yet sufficiently strong or sustained, were defeated by the constitutional monarchists Mignet, *Histoire &c*, vol i ch iv

The account of Bailly himself is, that the firing took place against his consent which though the only tenable defence before the tribunal of 1793 and from his disposition most probably a true one only exhibits an admitted fact, that his character was deficient in the necessary energy Events are judged by their results Had the news of the treaty of Pilnitz which was signed only three days afterwards, not arrived in time to feed the revolutionary fire history might have had another tale to tell and Lafayette and Bailly might have descended to posterity as the men who checked the progress of the revolution at the moment when its legitimate end had been obtained

The measure of the 17th was approved by the Assembly but Bailly offered his resignation on the 19th of September, and finally relinquished the mayoralty on the 16th of November He either travelled abroad, or retired to Nantes according to different accounts, till towards the middle of 1793 During this time he compiled memoirs of the Revolution and its causes, which were published in 1804

The execution of Louis XVI, on the 21st of January, 1793, made Bailly feel that a man so much the object of enmity to the ruling faction as himself could no longer live openly in France He wrote to Laplace, who had retired to Melun, wishing to know whether he might safely come there Laplace answered that he might, but, in the meanwhile, the insurrection of the 31st of May established the *armed* power of the Jacobins, and Laplace wrote again to Bailly, warning him not to come, as a detachment of the revolutionary army was at Melun In spite of this warning he had the imprudence to venture He was recognized by a soldier in the streets, seized, and conducted, after some delay, to Paris He was charged as well with the affair of the 17th of July already alluded to, as with conspiring in favour of the late royal family Being produced as a witness on the trial of Marie Antoinette, he denied all accession to any scheme

of the latter nature, and declared his conviction of the falsehood of all the charges brought against the queen. His own trial took place on the 10th of November. The day preceding he published his justification, which is to be found in the *Procès Fameux*, vol. ii. The next day, or the next but one (accounts differ), he underwent the usual fate, attended by circumstances of unusual cruelty. The conduct of the people towards him excited the indignation even of the executioners. They insisted that the scaffold should be removed to the Champ de Mars, the scene of the events for which he was to suffer. When there, it was once more removed beyond the boundary of the *sacred* spot, which was not to be profaned by the blood of such a criminal. The detested *drapeau rouge* was burnt literally before his face. Under these insults his demeanour is represented as having been perfectly calm; and he is said to have answered the remark, 'Bailly, you tremble,' addressed by one of his persecutors, with, 'My friend, 'tis with cold.'

Even in the time of his greatest popularity he appears to have had enemies, who propagated the most absurd charges. One of them, a concealed royalist, as would appear from his calling Bailly 'a worthy rival of the great Franklin, that other benefactor of mankind, who has just gone post to hell to kick up a philosophical revolution there,' gravely accuses him of libertinism and luxury—the first without any attempt at proof, the second on the ground of his being a snuff-taker. He asks what would become of the unfortunate mayor, if John Basilowitz were king, who cut off the noses of all Russians who fed them with tobacco? As this Cato knew so little of M. Bailly as to imagine that he, and not his father, had been *garde des tableaux*, his work (entitled *Vie de M. Bailly*, and published in 1790) is in direct confirmation of the testimony of Bailly's friends, who affirm that he was retired, simple, and (snuff-taking excepted, on which they have been remiss) rather approaching to severity. But the unusual and solid respect paid him by his countrymen before his political life began; the arduous employments which fell thick upon him at the very first moment when a plebeian could be called into public life, and the furious anger which he had the honour to excite among the savages of 1793, are so many strong presumptions that he must have been no common character, even among the distinguished.

The character of M. Bailly as a writer is that of one of the most interesting and elegant among many. On the history of science no man has treated so as to approach him in the agreeable qualities of style. But his whole system is built upon surmises or conjectural interpretations of fact. He imagines that he sees, in the early science of all nations, rather the ruins of some complete system, than one in process of formation; and he supposes, therefore, that some nation, whose name is now lost, is the common original of the Egyptian, Chaldean, Hindoo, and Chinese astronomy. [See ASTRONOMY, vol. ii. p. 530.] On this supposition he speculates most agreeably; and, as has been observed, gets every point connected with his primæval people except—their name and existence. Their creator placed them at first in Asia, about the parallel of latitude 49° N. This notion led him into a correspondence with Voltaire (*Lettres sur l'Origine des Sciences*), who had found his inventors of all things in the Braminical tribe of India. Voltaire seems to have driven his opponent off the dry land: for in a second correspondence (*Lettres sur l'Atlantide*) Bailly erects his altar to the unknown people upon the island Atlantis, which Plato and others had drowned, as they thought, to rise no more. He strenuously contends for the existence of a lost race from this tradition, with more learning and ingenuity than success. At the same time, all the writings of Bailly on the dark ages may be usefully read, with one slight alteration. For 'I affirm' read 'I conjecture,' and for 'I conjecture' read 'it is possible'—we shall then have legitimate and interesting speculation substituted for a fallacious attempt at history without records.

With an avowed intention to destroy, as far as in us lies, the credit of Bailly as an historian, we proceed to consider his modern astronomy. Here, it might be supposed, no system could mislead, as not even Bailly could make an Atlantid islander of Tycho Brahe or Copernicus. But, nevertheless, he appears to us to have been utterly deficient in the power of retaining all the circumstances necessary to a narration. The instance we shall cite we cannot attribute to any other defect, because intentional unfairness to the same extent would have been insane folly, and forgetfulness arising out of prejudice, the peculiar circumstances will hardly admit as a solution.

Bailly had mentioned, as a discovery of his own, some phenomena connected with the satellites of Jupiter. Against this Lalande put in his own claim, and some controversy ensued, which ended by Bailly, who did not give up his pretensions, inserting in his History, vol. iii. p. 180, a fair statement of the point in dispute, accompanied by the necessary references to both sides of the question. This might have been a warning to be cautiously fair towards Lalande for ten pages at least, yet within that limit the name of the latter is entirely excluded from one of the most laborious undertakings of his useful life. In describing the celebrated process for settling the return of Halley's comet, no name is mentioned except that of Clairaut, though it was Lalande who suggested the trial, and worked night and day for six months to furnish Clairaut with the numerical data, without which he declared he would not undertake the work. The task of Lalande required both theoretical and practical knowledge of every detail. Clairaut was not the only man in France who was equal to his part of the work, but Lalande was the only man* who dared to undertake *his* share. The eyes of all the scientific world were fixed with eager curiosity upon the process, and Bailly himself had been employed upon the same orbit in a different way. Whatever interpretation may be put upon this omission, it renders the work of Bailly a very suspicious authority. We might cite other grounds, but this is sufficient to raise the doubt which we wish to raise.

We have dwelt thus much upon the character of Bailly as an historian, because we find in many works, English and French, one unvaried note of praise upon the subject. When his *History of Astronomy* appeared, the elegance of the style, and the plausibility of the hypothesis, caught the whole world. We doubt not that Voltaire regretted in his heart that he had committed himself to the Bramins. There was no work on the subject in existence which could claim the title of history, and praise to every possible extent became the order of the day. The work of Delambre soon dispelled this mist from the eyes of scientific men, as could be sufficiently demonstrated if we had room for quotations. But experience has abundantly proved that time is necessary to work a reformation in such matters of opinion. Were we to collect the sentiments of our most celebrated works of reference on the merits of Bailly's *History*, and compare them with those expressed in France at the time of its appearance, as well as at the present day, the reader would smile to see that we have been receiving the light of a star which has long been extinguished, a phenomenon as likely to happen in morals as in astronomy.

(See the *Biographie Universelle*; Lalande, *Bibliographie Astronomique*; and those works cited in the article ASTRONOMY, vol. ii. p. 537, which have been published since 1800.)

BAILMENT, in law, is a term derived from the French word *bailler*, to deliver, and may be defined to be 'a delivery of goods for a particular purpose, upon a contract, express or implied, that the purpose shall be carried into effect, and that, when that is done, the goods shall be restored, by the bailee or person to whom they are delivered, to the owner or bailor, or, according to his directions.' The degree of responsibility which attaches to a person who receives goods or other property belonging to another, depends entirely upon the circumstances of the delivery, and as those circumstances are infinitely varied, the subject is one of considerable nicety; while its connexion with the transactions of commerce and the daily occurrences of life renders it of great practical importance. The whole English law of bailment rests upon the Roman law, from which it derives not only its doctrines but its technical terms. In this article it will be sufficient to enumerate the general rules which have been established by the law of England respecting bailment; under some of which the cases which ordinarily occur in practice will in general be comprehended. The most convenient and accurate method of classifying the different species of bailments is that suggested by Sir William Jones in his *Essay on the Law of Bailments*; we shall follow his arrangement of the subject, using the Latin names which are common to the English and Roman law.

I. *Depositum*, which is a mere delivery or simple deposit of goods to be kept by the bailee for the bailor without re-

* He was assisted by a lady, Madame Lepaute. See *Companion to the Almanac for 1835*, article 'Halley's Comet.'

muneration. In cases of this kind, the main obligation imposed upon the bailee is faithfully to return the goods upon demand; and he is not liable for the loss or injury of the property deposited with him, unless it has been occasioned by wilful abuse, or such gross negligence as to be evidence of fraud, or at least incompatible with good faith. In the Roman law, gross negligence was denominated *magna*, or *lata culpa*, and was held to be presumptive evidence of fraud, when applied to cases of trust. This principle is adopted by Lord Holt in the case of *Coggs* v. *Barnard* (2 Lord Raymond, 913); and indeed where confidence is reposed, gross negligence bears so near a resemblance to fraud, as to be often equivalent to it in its effect upon contracts. The measure of diligence required from the bailee in cases of mere deposits, or, as they are sometimes called, general bailments, is that which he uses in his own affairs: if, for instance, his house is on fire and he saves his own goods, leaving those deposited to be burned, though he has time and power to save both, he will be bound to restore the value to the owner; if, on the other hand, he is only able to save one of them, he is at liberty to prefer his own, unless the deposited property be obviously of much greater value; in which case it is said that the bailee ought to save it, and that he may then claim indemnification from the depositor for his own loss. The general rule is, that a gratuitous bailee must keep the goods as he keeps his own, and if he does so, he is not answerable for loss or damage, however careless or negligent he may be in his general habits. 'If,' says Lord Holt, in the case above cited, 'the bailee be an idle, careless, drunken fellow, and comes home drunk, and leaves all his doors open, by reason whereof the goods deposited are stolen, together with his own, he shall not be charged, because it is the bailor's own folly to trust such an idle fellow.'

II. *Mandatum*, or commission, which is a delivery of goods for the purpose of having them carried from one place to another, or of having some act performed upon them, for which service the bailee is to receive no reward or payment, and from which the depositor alone is to derive benefit. The distinction between this kind of bailment and a mere deposit, is that the former implies some action to be done by the bailee, whereas the latter simply relates to custody. Hence arises a difference in the nature of the duty imposed, which is not merely to return the property to the owner, but to execute the commission which, by the acceptance of the goods for that purpose, the bailee has engaged to perform. There is, however, no real difference in the two cases as to the degree of liability incurred by the bailee; for his acceptance of the commission implies an undertaking to do so much towards the execution of it, as he would do if he were performing his own work; and his neglect to do so is such a degree of negligence as amounts to an evidence of bad faith: gross negligence, therefore, or breach of faith, are the only grounds upon which either a depositary or a mandatary can be charged with a loss.

III. *Commodatum*, which is a loan of goods to be used by the person to whom they are lent or delivered. In this case, as the bailee alone derives a benefit from the transaction, a proportionate increase of obligation and responsibility is cast upon him. Where a chair, a book, a carriage, or any other article is lent for the accommodation of the borrower, he is bound to re-deliver it specifically in as good condition as it was in when delivered to him, subject only to the deterioration produced by the ordinary and reasonable use of it for the purposes of the loan: and he is also bound to indemnify the lender against any loss or damage which might have been avoided by very great care and vigilance. A borrower, therefore, is answerable not only for slight, but for the slightest neglect; he is to apply not merely ordinary care, but the greatest possible diligence; and it is not sufficient to exonerate him from responsibility for the loss or injury of the article borrowed, that he has taken as much care of it as of his own property; it is his duty to apply the utmost care of a careful and vigilant man. Thus, if I place a borrowed horse in a ruinous stable, and a violent tempest blows down the stable and kills the horse, I must bear the loss, because it was not entirely an accident, as a very careful man would have repaired the stable or would not have put the horse into it; on the other hand, if the stable had been in good repair, and had fallen from the violence of the tempest only, I should not have been liable. Even if the goods be stolen from a borrower, he must indemnify the owner, unless he has observed the greatest care, and used every precaution to prevent the occurrence. Thus, if I lock up a borrowed horse in my stable, and robbers break the door and steal him, I am not chargeable; but if I or my servants neglect to lock the stable-door, and thus give an opportunity to the robbers, I shall be liable, because my negligence has occasioned the loss. This instance will also serve to illustrate a distinction between a loss by robbery and a loss by theft, which is fully adopted into our law from the Roman law: if I neglect to lock the stable-door, in consequence of which the horse is stolen, this is a case of theft, which would not have happened but for my neglect; whereas if robbers break the door and take the horse, this is a case of robbery or overpowering violence which no care of mine could prevent. 'Adversus *latrones*,' says the civil law, 'parùm prodest custodia; adversus *furem* potest, si quis advigilet.' There may, however, be a case in which a borrower may be liable, though the borrowed article be taken from him by superior force. Thus, if I borrow a horse for a journey, and instead of taking the common road, I ride across a country notoriously infested by robbers, in consequence of which I am assailed and the horse is killed or taken from me: in such a case, I should be chargeable because the loss was occasioned by my imprudence in quitting the main road. The borrower of an article is also bound to use it for no longer time and for no other purpose than those for which it was lent. Thus, if I borrow a horse for a week to ride to Bath, and instead of using him for that time and purpose, I ride him to Oxford and keep him a month, I am liable to indemnify the lender for any accident which may befal the horse in the journey to Oxford, or after the expiration of a week. So also, if I lend a borrowed horse to another person, in consequence of which the horse is injured, I must indemnify the owner.

IV. *Vadium*, which is a delivery of goods in pledge or pawn as security for some debt or engagement. In this case a benefit is derived by each party to the transaction, the pawnee by having a profit on his loan and also a security for it, and the pawnor by having the advantage of goods or money on credit. The duty, therefore, of the bailee in this case is to take *ordinary* care of the property while in his custody,—such care, namely, as a careful man bestows upon his own property. He is not bound to use the most exact diligence, as in the case of a borrower for use; but he is responsible for less than gross neglect. As the presumption is, that a bailee does not use ordinary diligence who suffers the goods deposited with him to be taken away by *stealth*, it follows that if they are simply *stolen* from him, he is liable to account for them to the pawnor unless he can show by the circumstances of the transaction, that he was in no default; but upon the distinction above mentioned between a theft and a robbery, he will not be liable if he should be forcibly robbed without any misconduct or neglect on his part. Also in case of his house being burnt accidentally, the pawnee is not liable to restore to the owner the value of goods pawned if he has used ordinary care to prevent the occurrence of such an accident. The pawnee is at liberty to use the goods pawned, provided they are of such a nature as not to be deteriorated by his so doing; thus clothes, &c., when in pawn, must not be worn by the pawnee, but jewels or other articles which cannot be injured by being worn, may be used by him. This is, however, always at the peril of the pawnee, who must indemnify the owner in all cases, even of robbery by violence, if the goods pawned are lost by him while he is wearing or otherwise using them. It is said that where the pawnee is at expense in maintaining the articles pledged, as in the case of a horse or cow, he may moderately use the horse and take the milk of the cow for his compensation.

V. *Locatum*.—This species of bailment, which is of the most extensive importance in the common affairs of life, is the hiring of an article, with a payment or remuneration made either by the bailee for the use of it, or by the bailor for work and services to be performed by the bailee upon the article delivered to him. For more clearly understanding the relative rights and duties of the parties to this complicated kind of bailment, it may be conveniently divided into two parts: 1. A bailment of goods to be used by the hirer for a compensation to be paid by him to the owner, which contract is called *locatio rei*; and, 2. A delivery of goods for the purpose of having work done upon them, or of being safely kept for the owner, and in each case for a reward or payment to be given or made to the

bailee by the owner. This latter contract is called *locatio operis*.

A third division has been made by some authors, namely, *locatio mercium vehendarum*, where goods are bailed for the purpose of being carried from one place to another for a stipulated or implied reward to the carrier This seems, however, to be merely an instance of the *locatio operis*.

With regard to the first of these divisions, the modern and approved doctrine is, that the hirer of goods for a payment to the owner is bound to keep them with ordinary care, that is, with that degree of care which a careful man uses in keeping his own goods. If, therefore, I hire a horse, I am bound to treat it in all respects with the same care and moderation as a man of common sense and prudence would apply to his own horse, if I place it in a stable and leave the door open, so that it is stolen through my negligence, I must indemnify the owner, but I am not answerable if it is violently taken from me by robbers, unless, by riding at unseasonable hours, and travelling by unusual roads, I have imprudently placed myself in the way of danger. So, also, if I hire a house, lodging, or carriage, I must take the same care of them, and of the conduct of my servants and family respecting them, as all prudent and discreet men would do of their own property

The second kind of bailment comprised under this general head, viz, *locatio operis*, is of very general occurrence in the common concerns of life. Not only manufacturers and artizans, who have materials delivered to them to work up, but innkeepers, carriers, factors, wharfingers, and warehousemen fall under this general head But as innkeepers, factors, and carriers are exposed to a greater degree of responsibility by the law of England than that of mere bailees for hire, by means of acts of parliament and antient customs, we refer, for the details of their liabilities, to CARRIER, FACTOR, and INN. Generally speaking, all bailees of this description, who in fact let their skill and attention to hire, are bound to take *ordinary* care of the things respectively bailed to them. With respect to manufacturers or artizans, they are not only bound to keep with ordinary care the goods deposited with them to be worked upon, but they must also apply a degree of skill equal to the performance of the particular kind of work respectively committed to them This obligation is founded upon the presumption that every man possesses the ordinary skill required for the art or business he professes The doctrine of the civil law is, that every person professing an art or handicraft, *spondet peritiam artis*, and the consequence of this doctrine is that *imperitia culpæ numeratur* If, therefore, I deliver cloth to a tailor with directions to make it into a coat, and if, for want of having the ordinary skill of his trade, he cuts it so as to spoil the cloth, he must indemnify me for the loss. With respect to agisters of cattle, wharfingers, and warehousemen, it may be stated generally that they are all responsible for want of good faith, and of reasonable and ordinary care and diligence, and not to any greater extent unless under peculiar circumstances

(Upon the whole of this subject, see Sir William Jones's *Essay on the Law of Bailments*, Bacon's *Abridgment*, title *Bailment*, Pothier's *Traités des Contracts*, *&c*, and Kent's *Commentaries on American Law*, in which latter work the subject of bailment is treated in a most perspicuous manner)

BAINBRIDGE, or BAMBRIDGE, CHRISTOPHER, archbishop of York, and cardinal-priest of the Roman Church, was born at Hilton, near Appleby, in Westmoreland, and received his education at Queen's College, Oxford, of which he became provost in 1495, and was created Doctor of Laws about the same time. He was afterwards a liberal benefactor to his college. In 1503 he became Dean of York, in 1505 Dean of Windsor; and, in the same year, Master of the Rolls and one of the king's privy council. In 1507 he was advanced to the see of Durham, and was translated the next year to the archbishopric of York.

Bale and Pits assure us that Bainbridge had been very intimate with Morton, Archbishop of Canterbury, and shared in that prelate's sufferings during the usurpation of Richard III., after whose death his affairs took a more prosperous turn, as he was appointed almoner to King Henry VII., and employed by that prince on several embassies to the Emperor Maximilian, Charles VIII., King of France, and other potentates of Europe. All this, however, relates, not to Christopher Bainbridge, but to Christopher Urswyke, who had been his predecessor as Dean of Windsor.

Bainbridge distinguished himself chiefly by his embassy from King Henry VIII. to Pope Julius II., who created him cardinal of St. Praxede, in March, 1511, and eight days afterwards appointed him legate of the ecclesiastical army which had been sent into the Ferrarese, and was then besieging the fort of Bastia. His letter to King Henry VIII, concerning the pope's bull giving him the title of most Christian King, is extant in Rymer's *Fœdera* (edit 1704-1735, vol xiii p 376). This prelate died at Rome, from poison, July 14th, 1514, and was buried in the English hospital (since called the English college) there

Bainbridge is usually stated to have been poisoned by one of his domestics, Rinaldo de Modena, whom he had chastised Rinaldo de Modena, however, was not the steward of Cardinal Bainbridge as Roscoe says in the *Life of Leo X*, nor one of the household chaplains, as he is described by Stow, but simply a priest, whom the cardinal employed in menial services in his chamber Rinaldo de Modena, after confessing that he was suborned to this act by Sylvester de Giglis, Bishop of Worcester, who was at that time envoy from King Henry VIII to Rome, committed suicide The presumption that the Bishop of Worcester instigated the deed is strong Richard Pace, one of the cardinal's secretaries, afterwards Dean of St Paul's, in a letter to King Henry VIII (Ellis's 1st *Series of Original Letters*, i 110), acknowledges that his lord 'had some vices The violence of the cardinal's temper to those about him is particularly dwelt upon by Oldoinus, the continuator of Ciaconius The death of Cardinal Bainbridge, by opening the road of preferment, hastened Wolsey's greatness Snelling, in his work on English silver coins, has engraved a half-groat of King Henry VIII, struck in the archiepiscopal mint at York during Bainbridge's prelacy, which has on the reverse X B at the sides of the shield of the royal arms (See the *Biographia Britannica*, edit 1778, vol i p 513, Wood's *Athenæ Oxon* edit. Bliss, vol ii p 702, Ellis's *Original Letters*, 1st series vol i pp. 99, 106, 108, 2d series, vol i p. 226)

BAINBRIDGE, JOHN, an astronomer of merit, born 1582, at Ashby-de-la-Zouch, died 1643, at Oxford He was the first Savilian professor of astronomy in that university, and was appointed, in 1619, by Sir Henry Savile himself, to whose notice he was recommended by his description of the comet of 1618. He was also a Doctor of Medicine, and a good oriental scholar, having studied Arabic for the purpose of reading the astronomers of that language For more detail see Martin's *Biographia Philosophica* or Hutton's *Dictionary* (The list of his works in the latter is the more precise) His published works were, 1. 'Astronomical Description of the Comet of 1618,' London, 1619 2 A Latin version of the Sphere of Proclus, and of Ptolemy *de Hypothesibus Planetarum*, together with the *Canon Regnorum* of the latter, quarto, 1620 3 '*Canicularia*, a treatise on the Dogstar, and the Egyptian year, left incomplete, but published by Mr Greaves, after his death, in 1648 His unpublished works are, 1. 'Antiprognosticon, against Astrology 2. 'On the Method of finding Differences of Longitude' 3 'On the Planet Venus (The remaining, left by will to his friend Archbishop Usher, are in the Library of Dublin College) 4. 'A Theory of the Sun' 5. 'A Theory of the Moon' 6. 'On the Quantity of the Year.' 7. Two volumes of Observations. 8. Several volumes of miscellaneous mathematical papers

The preceding list is from Dr Hutton. There is no mention of Bainbridge that we can find in Delambre or Weidler.

BAINS Two places in France bear this name. The first is in the department of Vosges, and is a small town, agreeably situated on the brook Begnerat, or Baigneirot, three or four miles N.E. of the town of Fontenois, near the boundary between this department and that of Haute Saône. It has several warm springs, which draw some visiters The waters are clear and tasteless, except those of one spring, which are slightly acid; they are not quite so warm as the neighbouring springs of Plombières, their temperature being only 32° of Reaumur, or 104° of Fahrenheit; that of the latter is 38° of Reaumur, or 117 5° of Fahrenheit; but they are considered more efficacious for diseases of the chest, for gout, and rheumatic gout (*les gouttes vagues*, and *les rheumatismes goutteux*.)

Some ancient bronze medals, mostly Roman, but a few Greek, were discovered here in 1752, while digging to ascertain the cause of some derangement which had

taken place in one of the springs. They were found under a large stone, placed over the spring itself, and having a vertical opening, through which the water flowed; and were regarded as showing decisively that these baths were known to the Romans.

There are numerous lodging-houses for visitors, and delightful walks in the neighbourhood. The population is given in Reichard's *Descriptive Road Book of France* (London, 1829) at 2000. 48° N. lat., 6° 16′ E. long.

The other *Bains* is a village in the department of the Pyrénées Orientales (Eastern Pyrenees). It is on a rivulet running into the Tech (a small river which waters the southern part of the department), and near the frontier of France and Spain, two or three miles east of the little town of Arles. Here Louis XIV. caused a fortress to be built in 1670, on the summit of a mountain which commands the village. At the foot of this fortress are two mineral springs, differing only in temperature, and distant about 180 feet from one another. The water is very hot; it is collected in a large basin or reservoir, the descent to which is by steps. Over the bath and the steps is an antient vault, with an opening at the top, to admit light. This, as well as the bath, is ascribed to the Romans, or to the early Moors. 42° 28′ N. lat., 2° 42′ E. long.

BAIRAM is the designation of the only two festivals annually celebrated by the Turks and other Mohammedan nations. The first is also called *Id-al Fitr*, i. e. 'the festival of the interruption,' alluding to the breaking of the universal fast which is rigorously observed during the month Ramadhan or Ramazan. It commences from the moment when the new moon of the month Shewal becomes visible, the appearance of which, as marking the termination of four weeks of abstinence and restraint, is looked for and watched with great eagerness. At Constantinople it is announced by the discharge of guns at the seraglio upon the sea shore, and by the sounding of drums and trumpets in all public places of the city. This festival ought, properly, to last but one day, but the rejoicings are generally continued for two days more. The second festival, denominated *Id al-Azhá*, or *Kurbán Bairám*, i. e. 'the festival of the sacrifices,' is instituted in commemoration of Abraham offering his son Isaac, and is celebrated seventy days after the former, on the 10th of Zulhijjah the day appointed for slaying the victims by the pilgrims at Mecca. It lasts four days. At each of these festivals but one *khutba* is read, i.e. divine service is only once publicly performed, on the first day, about an hour after sunrise; and in the Turkish empire even this solitary act of public worship is now no longer announced by the muezzins, or public criers, from the tops of the minarets or turrets of the mosques. At Constantinople the two Bairâms are celebrated with much pomp. The sultan on this occasion receives the homage of the different orders of the empire, and proceeds in state, followed by all the higher officers, to the mosque. As the Mohammedans have a lunar year of 354 days, the two festivals run, once every thirty-three years, through all the seasons. (See *Muradgea d'Ohsson, Tableau Général de l'Empire Othoman*, Paris, 1788, 8vo. vol. ii. p. 222-31.)

BAIRAM, or BAIRAM KALESI, a small and miserable Turkish town in Asia Minor, situated on the Gulf of Adramyttium, opposite to the island of Lesbos, or Mitylene, and near the promontory of Lectum, or Cape Babà. [See CAPE BABA.] Bairam is not otherwise remarkable than by standing close to the site of the antient city of Assos, the remains of which are still very considerable. Assos was a maritime town, strongly fortified by nature and art, and celebrated for its exportation of wheat of a superior quality. (Strabo, 735.) It is mentioned by Strabo as a proof of the delicate luxury of the antient kings of Persia, that they caused the corn for their bread to be brought all the way from Assos. This city, which is said to have been founded by an Æolian colony from the neighbouring island of Lesbos (Strabo, 610), is mentioned by St. Paul, who visited Assos on his return from Troas. (See *Acts* xx., 13, 14, 15.)





[Silver Coin of Assos. Real size. British Museum.]

This line of coast is bold, rocky, and naturally destitute of seaports. The enterprising inhabitants of old Assos, however, remedied this defect by art and industry. They threw out a strong mole, or stone dyke, from the shore, and this was so disposed as to shelter their vessels from all the more dangerous winds. Through the neglect and storms of many centuries this valuable work has fallen to pieces and almost disappeared, but in stormy weather the waves still break and foam over its foundations and fragments.

A steep and well-defended ascent led from the port to a broad but shelving platform which was the cemetery of the city, and which is still strewed with huge antient sarcophagi of granite. From the cemetery a long flight of steps, also fortified, conducted to a terrace and porticoes, and to the principal gate in the city walls. Within that gate the lower city, with its baths and edifices, rose up the gentle acclivities of a hill, in the rear of which a steep granite rock towered above all the city, and served for the natural Acropolis or citadel, which the Greeks always looked for in selecting the sites of their towns. On the summit of this rock stood the building of the Acropolis, and on its sides, fronting the sea, rose temples and porticoes, a theatre and other public edifices, all of great and noble proportions, as is evident by their remains and fragments. In the days of its prosperity, therefore, Assos, with its outworks rising gradually from the line of the sea to an elevation of five or six hundred feet, and from the nature of its position revealing and throwing out all its best parts, must have presented a striking and beautiful aspect. Its inhabitants, also, from the sloping hill, or lofty Acropolis, could enjoy one of the finest views in the Ægean Sea. Looking straight before them, across a narrow arm of the Adramyttian Gulf, their eye could take in nearly the whole extent of the island of Lesbos with its fertile plains and lofty mountains, behind which, at sun-set, as being loftier still, the curious acuminated point of the highest mountain of Chios (Scio) is generally visible.

The walls of Assos were of great strength, and about five miles in circuit. Three of the city gates remain almost entire, and the ruins of the principal gate, that faced the sea, indicate a magnificent structure. In front of these ruins the traveller may still walk over part of the grand flight of steps which led from the port and the cemetery to the city.

The ruins of Assos have been rarely visited. In 1801, when Dr. Hunt and Professor Carlyle went to Bairam, on their descent from Mount Ida, they found these ruins so considerable, and of so elevated a class, that they called them 'magnificent remains of a city.' These two gentlemen may be styled the discoverers of Assos, for even until their description appeared, which was not before 1817 (in Walpole's Memoirs relating to European and Asiatic Turkey), no account of that important and splendid city had ever been published. M. de Choiseul, in his *Voyage Pittoresque*, indeed, makes mention of the ruins, but slightly, and in a way that shows he not only had never been at the spot, but knew nothing positive about it or its antiquities.

Dr. Hunt found—

1. Three of the antient gates quite entire, and the fourth gate and flight of steps in ruins, or imperfect, as already described.

2. On the summit of the Acropolis the remains of an edifice, which, in the revolution of ages, had been a Genoese castle and a Greek church, and was then (in 1801) a Turkish mosque. Over the doorway of this building was an inscription in very modern Greek characters. Near the same edifice were two reservoirs or cisterns to hold water for the garrison, and one of them still supplied, in part, the modern town of Bairam.

3. On the brow of the Acropolis some broken columns (fluted) of granite, and various bassi-rilievi, the figures of which were twenty inches high, and cut on blocks of granite. The subjects of these sculptures were, a procession to a sacrifice; a symposium, or banquet; two bulls fighting, with their horns locked together; three horses running, and two winged sphinxes, resting each of them a foot on a kind of candelabrum, placed between them, and looking upwards. The style of the sculpture resembled the Egyptian.

4. A number of fragments of shafts of columns in *their original site* (on the Acropolis), so that a person conversant with antient architecture could easily trace the plan and different details of a temple to which they had belonged. These columns were of granite, and three feet in diameter.

5. Descending from the Acropolis, a small but beautifully

constructed edifice, having an arched, or rather vaulted, dome. The walls and roof were composed of huge blocks of granite fitted together without cement. The Turks had once converted this building into a vapour bath, but at that time it appeared neglected.

6. On a lower declivity of the rock of the Acropolis an antient Greek theatre, of which the remains were very considerable. The stone seats for the spectators remained almost perfect: they were conveniently hollowed out in front, for allowing the people sitting on them to draw their feet a little back and under them, so as not to incommode those who sat before them. There were forty rows or ranges of these seats, and at the top of the theatre there was a broad open terrace. Two large vaulted entrances, by which the people entered into the area, whence they ascended by five flights of steps to their appropriate places; some large blocks remaining in their original place in front of the stage, and supposed by Dr. Hunt to be the ruins of the Thymele, where the singers and musicians used to be placed in the Greek theatres; and several other component parts of such an edifice, either entire or but partially destroyed. The diameter of the whole theatre was seventy paces.

7. Along the whole line of the wall [illegible] fragments of columns and architraves which [illegible] an extensive portico. Some [illegible] triglyphs, which still remained, showed that this portico had been of the Doric order. Two broken inscriptions in [illegible] antient Greek characters, but apparently of no importance, lay near this spot.

8. At the foot of the antient [illegible] in the cemetery already mentioned Dr. Hunt [illegible] sarcophagi, some of which were seven [illegible] proportionate length and breadth [illegible] hewn out of one massive block of granite [illegible] lid or cover out of another. The sides of most of them were ornamented with festoons [illegible] the remains of inscriptions which [illegible] illegible. The destructive Turks had broken into all these sarcophagi by making holes in their sides, and these entrances admitted [illegible] who were glad of the shelter and shade which they found within.

Dr. Hunt moreover observed in various parts of the old town heaps of broken vases beautifully varnished with black, and of that light clay [illegible] He was led to believe that the [illegible] of any one who should carry on excavations at Assos would be repaid by the discovery of many valuable [illegible]. The tradition of the inhabitants preserved the fact that during the middle ages, the place had been [illegible] and commercial settlement of the enterprising Genoese.

Some English travellers who visited Assos in 1828 and in 1831, confirm Dr. Hunt's description in all its important points. They were equally struck with the beauty of its situation, the extent of its walls, and the number and magnificence of its ruins; but they found that many [illegible] had been broken and defaced since the [illegible] time, and that most of the more portable fragments had been carried away by the Turks for buildings, for tombstones, troughs for cattle, corn mills, and other purposes. For the [illegible] of tombstones alone the Turks [illegible] the [illegible] occupation of Asia Minor and Greece have worked up the materials of whole cities, and have blown up and shattered some of the most exquisite remains of antient art to cut the fragments into grave slabs [illegible] turbaned pillars. (R. Walpole, *Memoirs relating to European and Asiatic Turkey, edited from manuscript journals*, London, 1817.)

BAIRD, SIR DAVID, BART., General in the British army, and K.C.B., was born on the 6th December 1757, at Newbyth, in Scotland. He entered the service at fifteen years of age, as an ensign in the 2nd regiment of foot, and obtained a company in 1778, in the 73rd Highland regiment. Before entering upon active service he spent some months at an academy at Chelsea, then held in much esteem as a school of military discipline. An anecdote is told respecting his conduct at this period which evinces an early but morally defective sense of the inviolability of military rules. Young Baird happened, according to the discipline of the academy, to be stationed one evening, when a fellow student, his senior in years, endeavoured to pass, contrary to orders. Threats and entreaties were both employed to induce the young soldier to wink at the transgression, but in vain. '*That* I cannot do,' said Baird, 'but, if you please, you may knock me down and walk out over my body.'

In 1779 Captain Baird accompanied his regiment to India, and was present at the disastrous affair of Perambaucum, on the 10th September of the next year, when a handful of British troops, after a most gallant defence, were perfidiously slaughtered by the army of Hyder Ali. In consequence of an accident which deprived the British troops of their ammunition, and after repulsing the forces of Hyder at least twenty times more numerous, Colonel Baillie, the English commander, made signal of surrender. It was acknowledged by the enemy, and his men threw down their arms; the moment they did so the cavalry of Hyder, commanded by his son Tippoo, rushed forward and literally cut the British force to pieces. Captain Baird received two sabre wounds on the head, a ball in the thigh, and a pike wound in the arm, and fell senseless. On recovering he found himself in the midst of his dead and dying comrades. He fortunately rallied sufficiently to be able to crawl and surrender himself to some French officers in the service of the enemy.

The humane and generous treatment of the English prisoners by the French officers in the service of Hyder Ali [illegible] Napier [illegible] (quoted in Mill's *British India* [illegible]) [illegible] justice to the humanity of these gentlemen, without whose assistance many of us officers must have perished; but their merit will live for ever embalmed in the hearts of all who felt and witnessed their beneficence.

But the French officers had not the power of restoring the English prisoners to liberty. [illegible] Seringapatam was the destination of Baird and about 160 British [illegible]. He had to endure a captivity of nearly four years [illegible] embittered by every privation and suffering which [illegible] vengeance could devise. He bore all with the firmness and equanimity which attended him through life. After his release from prison Baird visited England and returned to India in 1791 with the rank of lieutenant-colonel. [illegible] with the [illegible] in the affairs of the Rajah of Tanjore [illegible] in his simplicity that the policy of the British government [illegible] towards the native princes was regulated [illegible] justice and good faith. He left India in disgust on the 17th October 179[illegible] for the Cape of Good Hope, but returned soon after with the rank of brigadier-general, and was engaged in active service under General Harris in the war which again broke out between the British government and the sultan of Mysore, Tippoo, the son of Hyder Ali.

After various successes the British army encamped under the walls of Seringapatam, a fortress of great strength, and defended by a numerous and confident army. The British commander determined to take it by storm, and the conduct of this dangerous enterprise was, at his own solicitation, intrusted to Major-General Baird. The arrangements for storming were completed on the 4th May, 1799, and one o'clock of that day was fixed upon for the assault, it being known that the natives usually sought shelter and repose from the heat of the sun at that hour. A few minutes before one Baird went round to the storming party, and told them to be ready at an instant's warning. When the precise moment arrived he ascended the parapet of the trenches in full view of both armies, 'a military figure,' observes Colonel Wilks, 'suited to such an occasion,' and, drawing his sword with the gallant bearing of a knight of romance, shouted, in a tone that thrilled along the trenches, 'Now, my brave fellows, follow me, and prove yourselves worthy the name of British soldiers.' Within seven minutes the English flag waved from the outer bastion of the fortress, and before night Seringapatam was in possession of the besiegers. The skill and intrepidity displayed by General Baird on this memorable occasion were only equalled by his humanity towards the captives, humanity the more worthy of praise when it is recollected that Seringapatam was the scene of his sufferings and long imprisonment.

Throughout his professional career General Baird had to endure many of those slights and mortifications to which persons not of commanding birth and ministerial influence are too frequently subjected in the British army. In no other service has the 'cold shade of the aristocracy,' to use

the happy language of the historian of the Peninsular war so constant and extensive an influence yet such is the native valour, and so buoyant are the hopes of the British soldier that in his service are there to be found more enterprising officers of comparatively inferior birth and connexions At the time of the taking of Seringapatam, Lord Mornington (the present Marquess Wellesley) was governor general of India his brother, Colonel Arthur Wellesley (the present Duke of Wellington who even then displayed the qualities of a skilful officer) commanded a corps of reserve under General Baird Usage entitled Baird to the command or governorship of the town which he had taken even had his services been less brilliant and successful Under this impression he took possession of the palace of Tippoo, who was among the slain, as his head quarters He was next day abruptly commanded to deliver up the keys of the town to Colonel Wellesley, who as it happened, had no active share in the capture "And thus said Baird the sweat was dry on my brow, I was superseded by an inferior officer" The injustice of this proceeding is not lessened by the consideration that this "inferior officer" about ten years after, proved himself to be a man of far higher military capacity he was appointed to the command because he was brother to the governor general, and not because he was a soldier of promise

The storming of Seringapatam was the most [illegible] of Sir David Baird's military life [illegible] quent services were numerous [illegible] feel it necessary to notice [illegible] He received the thanks of Parliament and the East India Company for his brilliant conduct at Seringapatam [illegible] from the Company in the [illegible] [illegible] sword by his sovereign such [illegible] him at the time [illegible] [illegible]

In [illegible] General Baird [illegible] with the British [illegible] He [illegible] K[illegible] [illegible] R[illegible] S[illegible] [illegible] Knight [illegible] [illegible] General Baird [illegible] [illegible] through the Red Sea [illegible] [illegible] For the particulars of this [illegible] the reader [illegible] referred to the *Life of General Baird* [illegible] the *Military Sketches* [illegible] the expedition in the 10th [illegible]

On his return to India [illegible] the [illegible] establishment at Fort St George [illegible] He was afterwards [illegible] the Rajah of Rajpoor [illegible] considering himself neglected and [illegible] and having in vain remonstrated with the government of Madras he applied for leave of absence This [illegible] he relinquished his command and returned to Europe [illegible] says his partial biographer "the land of his early sufferings and his later glory for ever"

In 1805 General Baird commanded an expedition [illegible] against the Dutch settlements at the Cape of Good Hope took Cape Town, and was proceeding to [illegible] quest when he was recalled for having sanctioned an ill judged expedition of Sir Home Popham against one of the possessions of Spain in South America

In 1807 he accompanied Lord Cathcart in the expedition of that year against Denmark and though wounded twice during the capture of Copenhagen, he is hardly mentioned in the despatches while General Wellesley, his junior, who also had a command under Lord Cathcart, is made the subject of an elaborate eulogy On his return, he was sent to superintend a "camp of instruction in Ireland, an employment which would imply that his proficiency in the mechanical branches of the military art was more highly rated by his superiors than his fitness to command an army

In 1808 Baird commanded a large force that was sent out to co-operate with Sir John Moore, then commander in chief of the British forces in the Peninsula As we shall have to speak of the fortunes of this expedition in another place, we shall here merely state that it formed part of Sir John Moore's army in his retreat to Corunna, and shared in the glory of the battle of that name, which vindicated the honour of the English arms. On the death of that able commander (see Napier's *History of the Peninsular War*, vol i *passim*), General Baird as second in command, became commander in chief and the despatch relating to the battle was accordingly written in his name He was however too severely wounded to take advantage of the accidental promotion, even had circumstances been otherwise favourable, for he received some grape shot in the left arm, which so shattered the bone of the arm and shoulder that amputation from the socket became necessary On his return he received the thanks of Parliament for his gallant conduct, was gratified with the long sought for red riband, and created a baronet

In 1810 Sir David Baird married Miss Campbell Preston, of Perthshire with whom he received considerable estates in that county In 1814, at the termination of the war, he applied for a peerage and pension, considering the baronetcy and K C B honour quite inadequate to the length and importance of his services but he failed in his application. In 1820 Baird was appointed commander in chief in Ireland, but remained in office only long enough to show that, though an intrepid and gallant soldier, he was wholly ignorant of the principles of good government He was removed from his command in 1822, when the Marquess Wellesley became Lord Lieutenant From this period till his death, in 1829 he lived in retirement

(The *Life of General Sir David Baird*, &c, Mill's *British India*, Wilks's *Sketches of the South of India*, by Colonel Mark Wilks, Napier's *History of the Peninsular War*, *Narrative of the Campaign of* 1808-9 *in the North of Spain* by Colonel Sorell, Baird's Military Secretary)

BAIRDSTOWN (See BAIRDSTOWN)

BAIREUTH or BAYREUTH This principality, which formed part of the possessions of the margraves of Anspach [illegible] was, after its cession by [illegible] [illegible] France [illegible] superficies of 1212 [illegible] souls It was [illegible] France to Bavaria under [illegible] 1810 when it was divided [illegible] the former being at present [illegible] in the Bavarian province of the Upper Main, and the latter in that of the Rezat The circle or bailiwick [illegible] in the north eastern part of Bavaria in the province of the Upper Main and is a hilly country owing to the numerous arms which the Fichtelgebirge throws out in all directions but it has excellent pastures and raises much corn and fruit It is 10½ square miles in extent, and contains about 2[illegible]000 inhabitants two market towns, and 101 villages and hamlets Besides Baireuth which is the capital of the province or the Upper Main and in former times was that of the principality itself The town is pleasantly situated in a spacious and fertile valley between the Red Main which is here crossed by two bridges, and the Mistelbach and Sendelbach and is about 115 [illegible] north of Munich Including the town of St. G[illegible] which adjoins it, the number of its inhabitants is about [illegible]000 of whom about 900 are Roman Catholics, and [illegible]00 Jews Baireuth is an open, cheerful, well built place and has six gates, though part only of its old walls are standing, the streets are broad, regular, and well paved, and it is embellished with gardens, groves, promenades, and public fountains, three of which on the great market-place are adorned with statues The most remarkable buildings in Baireuth are the "Sophienburg, formerly the margravial residence, which was destroyed by fire in 1753 but has since been in a great measure restored and its church with an octangular tower of freestone, the new palace with its gardens, the chancery buildings, a handsome opera house, the riding house (a spacious and massive edifice containing a play house), the barracks, the mint and hunting establishments, now converted into schools, in the same way as the orphan house has been appropriated as a gymnasium the town-hall, the market place, with three handsome fountains, a lunatic asylum an infirmary, and an hospital, a house of correction and a hall for the exercise of the gun and bow (schiess haus) Besides the palace church and a gothic church erected in 1446 in honour of St Mary Magdalen, there are six other churches and a synagogue in the town It is the centre of administration for the province, has boards for the home and financial departments, judicial tribunals, and a Protestant consistory. At the head of the public schools in Baireuth is

the Christian-Ernestinum, which takes its name from the margrave who founded it in 1664 it has also several private and national schools, and a Jewish seminary. There are tanning-yards, manufactories for making tobacco pipes, parchment, linen, porcelain and earthenware, cottons, and stockings; and the inhabitants carry on considerable trade in grain and flour. According to Stein, Baireuth lies in 49° 57′ N. lat, and 11 40′ E. long

A road, bordered with trees, and scarcely more than half a mile in length, leads to the little town, or rather suburb, of 'St Georgam See,' on the Red Main, opposite to Baireuth, and close to the site of a lake called the 'Brandenburger Weiher, from which the waters have been drawn off, and which has been cultivated for agricultural and grazing purposes · it consists of a single straight street, composed of 210 handsome dwellings, all uniform in height, and has about 1800 inhabitants The house of correction at Baireuth has a manufactory of playing cards, and workshops for marble-slabs, &c attached to it, in the latter of which the prisoners work up fifty-five different kinds of native marble A spring of mineral water, impregnated with iron and sulphur, was discovered here in 1821 The celebrated Jean-Paul (J P Fr Richter) died in this place on the 14th of November, 1825, and a monument incloses his remains About three miles distant are the beautiful park, temple, gardens, and waterworks of the Hermitage, the mansion to which they are an appendage has two wings, the one fitted up with twelve cells, for the use of the former margraves as superiors, and as many hermits, and the other with an equal number for the margravine and twelve female recluses Six miles beyond it lies the Sanspareil, a royal country seat, romantically situated.

BAIROUT, the antient Berytus [See BEIROUT]

BAISE. [See GARONNE, &c]

BAJA, a large market town in Hungary, situated near the banks of the Danube, in the north western part of the circle of Bacs, and on the borders of that of Pesth in 46° 10′ N lat, and 18 58′ E long It contains 1676 houses, and 13,834 inhabitants (Blumenbach, 1833) and belongs to Prince Grassalkovics, who has a handsome residence on the spot It carries on an extensive shipping trade on the Danube, has several churches, a synagogue, a Catholic gymnasium recently erected, a civic school of the first class (haupt-schule), and a military store for provisions. It is celebrated throughout Austria for its annual fair, to which immense herds of swine are driven, and the prices obtained for them are a guide to most other parts of the empire Much grain and wine are produced in its vicinity

BAJAZID, or BAJAZET [See BAYAZID]

BAKER, DAVID, an English Benedictine monk and ecclesiastical historian, was the son of William Baker, and nephew, on the mother's side, to Dr David Lewes, judge of the Admiralty He was born at Abergavenny, December 9th, 1575. He received his early education at Christ's Hospital, in London, whence, in 1590, he went to Oxford, where he became a commoner of Broadgate Hall, now Pembroke College. Here he is recorded by Anthony à Wood to have fallen into vicious and disorderly habits Having left the university without a degree, he came to London, and joined his brother Richard, a barrister of the Middle Temple, where he studied law, and, in addition to the loose courses he had followed, became a professed infidel. After the death of his brother, his father sent for him to Abergavenny, where (being steward to Lord Abergavenny) he was enabled to make him recorder of the town Here, whilst returning home from holding a court at a distant place, a miraculous escape from drowning recalled him to a sense of religion, and made him ultimately desirous, in some way, to enter its service. After much meditation, he became convinced that there was no safety but in the Roman Catholic Church, and, taking a journey to London, he fell in with some Benedictine fathers of the Cassine congregation, with one of whom he shortly after repaired to Italy. He gave no further notice of his intentions to his father than that he was going to travel Arriving at Padua, he was received and admitted to the habit of religion by the abbot of Justina, 27th May, 1605, about which time he changed his name from David to *Augustine* Baker. After his noviciate, a fit of sickness rendering it necessary that he should try the effect of his native air, he returned to England, where he arrived just in time to reconcile his father, who was dying, to the Roman Catholic faith. Having performed the last offices to his father, provided for his mother, and disposed of his own estate, Wood says 'he made his profession of a religious state to the fathers of the Italian congregation, to whom he gave an account of his temporals' After this he resided partly in London and partly with Roman Catholic families in the country for some years, professing his religion as openly as could be done with safety. He then retired for a time to Douay Subsequently he became the spiritual director of the convent of English Benedictine nuns at Cambray, and also their confessor, with whom he passed nine years, and then again returned to Douay.

About 1621 an employment was recommended to him by the superiors of his order, that of searching after and transcribing the records of the antient congregation of the black or Benedictine monks in England. His collections on this subject filled six volumes in folio. They are said to have been lost, but father Clement Reyner's *Apostolatus Benedictinorum in Anglia*, fol, Duac 1626, was arranged and methodized from them, and they supplied many of the materials of Cressy's *Church History*, fol. Roan, 1668 Baker's religious treatises, which were numerous, though none were ever published, filled nine folio volumes of manuscript these, in Wood's time, were preserved in the monastery of the English Benedictine nuns at Cambray, and Wood has recorded many of their titles.

Among the names of the literary friends of Baker, those of Sir Robert Cotton, Sir Henry Spelman, Selden, Camden, and Godwin, are especially recorded The exact time of his last return to England is not mentioned He died in Gray's Inn Lane, August 9th, 1641, and was buried at St Andrew's, Holborn Father Austin Baker is often mentioned with great respect by Dame Gertrude More, in her *Spiritual Exercises* (Wood's *Athenæ Oxon* edit Bliss, vol iii col 7 Granger, vol ii p. 200, Chalmers's *Biogr Dict*, vol iii p 333)

BAKER, HENRY, whose name is familiar to those who are interested in microscopic observations was the son of William Baker, a clerk in chancery he was born on the 8th May, 1698, in Chancery lane, London In 1713 he was placed with a bookseller, whom he left in 1720 to reside with Mr John Forster, an attorney Here he first practised tuition on the deaf and dumb, an employment which he afterwards followed with so much success, his first pupil being Mr Forster's daughter The names of some of the first families in the land are to be found among his scholars, but he seems not to have been very solicitous that mankind in general should profit by his power of communicating ideas to these unfortunate objects, for he is said to have required a bond for 100*l* from each pupil not to mention his method of teaching In 1721 and 1725 he published some poems, sufficiently licentious, and from that time to 1737 his labours appear to have been chiefly literary, and not calculated to add a great deal to his fame In 1729 he married the daughter of the celebrated Daniel Defoe, and in 1740 was elected first a fellow of the Society of Antiquaries, and soon after a fellow of the Royal Society. He now gave proof of his talent for accurately observing objects of natural history, a turn for which he showed at a very early period of his life, and, about two years after his election he published the first edition of *The Microscope made Easy*, which was followed by his *Employment for the Microscope* In 1744 he received from the hands of Sir Hans Sloane, President of the Royal Society, the Copley medal, for his microscopical experiments on the crystallizations and configurations of saline particles.

His experiments upon the fresh-water polype, *Hydra viridis*, and upon other minute animals, are very curious and instructive, and though he was censured by men of small minds as an observer of little things, his observations are still valued, while their names are forgotten, or only remembered with contempt Dr Hill, a disappointed candidate for a fellowship of the Royal Society, who had been under great obligations to him, was one of these cavillers.

Henry Baker died in the Strand on the 25th November, 1774, in his seventy-seventh year, having survived his wife, and was buried in the church-yard of St. Mary-le-Strand.

His collection of natural productions, with some antiquities, &c., occupied ten days in the sale, which took place in 1775.

The larger Alpine strawberry and the true rhubarb (*Rheum palmatum*) were introduced by him into this country: he also made us acquainted with the history of the *Coccus Polonicus*, or cochineal of the north, transmitted

by Dr. Wolfe. This *coccus* was generally used as one of the principal kinds of scarlet dye before the discovery of South America.

The following 'cautions in viewing objects,' from his *Microscope made Easy*, are well worthy of the attention of those who pursue their inquiries even with the improved instruments of the present day.

'Beware of determining and declaring your opinion suddenly on any object; for imagination often gets the start of judgment, and makes people believe they see things, which better observations will convince them could not possibly be seen: therefore assert nothing till after repeated experiments and examinations, in all lights, and in all positions.

'When you employ the microscope, shake off all prejudice, nor harbour any favourite opinions; for, if you do, it is not unlikely Fancy will betray you into error, and make you think you see what you would wish to see.

'Remember that truth alone is the matter you are in search after; and if you have been mistaken, let not vanity seduce you to persist in your mistake.'

BAKER, SIR RICHARD, the author of the *Chronicle of the Kings of England* known by his name, was born about the year 1568. Wood (*Athenæ Oxonienses*), and the writer of the article 'Sir Richard Baker,' in the *Biographia Britannica*, make Sissinghurst, in Kent, his birth-place; but Fuller, who speaks of him as a personal acquaintance, in his *English Worthies*, states that he was a native of Oxfordshire. He was descended from Sir John Baker, who filled the office of Chancellor of the Exchequer to Henry VIII.; was educated at the University of Oxford; knighted in 1603; and married and settled in Oxfordshire before the year 1620. Having got into pecuniary difficulties, as it should seem, soon after his marriage, he was thrown into the Fleet Prison, where he spent the remaining years of his life, and died in the year 1644-5 in a state of extreme poverty. It was during his imprisonment and as a means of subsistence that he wrote his *Chronicle* and various other works; a circumstance which should, perhaps, induce us to judge leniently of their imperfections.

Of the *Chronicle*, the most celebrated of his works, the author has himself said, 'that it was collected with so great care and diligence, that if all other of our chronicles should be lost, this only would be sufficient to inform posterity of all passages worthy or memorable to be known.' Baker's *Chronicle* is by no means entitled to this high commendation: at the same time, we are not surprised at the great popularity which it enjoyed for more than a century after its publication (1641) among the squires and antient gentlewomen of the school of Sir Roger de Coverley. The manner was new, and as the sarcastic author of the *Historical Library* remarked, 'pleasing to the rabble;' meaning, by the term 'rabble,' all persons not eminently learned. Hollinshed was too bulky, and Speed too dull a writer to be popular; and Sir Richard's residence in the Fleet was not very compatible with those numerous references to authorities and antiquarian researches which find favour in the eyes of learned men, but perplex and weary the general reader. Though full of errors, Baker's *Chronicle* was long the text book of English history to country gentlemen and their families, and has given more pleasure and perhaps diffused more knowledge than historical works of far higher pretensions. It is now little read. The other works of Sir R. Baker are mostly of a devotional character;—*Meditations and Disquisitions on the Lord's Prayer and on the Psalms*; *Meditations and Prayers for the Seven Days of the Week*; *An Apology for Laymen writing on Divinity*; *A Soliloquy on the Soul, or a Pillar of Thought*; *Meditations on the Fall of Lucifer*; and various translations. He also, in a posthumous work, the *Theatrum Redivivum*, endeavoured to show that the Fathers were not so opposed to dramatic representations, as Prynne had represented in his *Histrio-Mastix*.

(Wood's *Athenæ Oxonienses*; Fuller's *English Worthies*; and the *Biographia Britannica*. The writer of the notice of Sir Richard Baker, in the last-named work, makes some statements, on the authority of Wood, which we cannot find in him; and erroneously represents the *Theatrum Triumphans* as a different work from the *Theatrum Redivivum*. The second title was a bookseller's trick to dispose of some copies of the *Redivivum* that lay on his hands. The work was first published in 1662. Baker's *Chronicle* brought the history of England down to the death of James: he wrote also a few lines of the reign of Charles I., by way of introduction. A fourth edition of the *Chronicle* was made and published in 1665 by Edward Phillips, the nephew of Milton, which brought the work down to the coronation of Charles II. Phillips says (*the Epistle to the Reader*) that as to the transactions of Monk (Duke of Albemarle) he had permission to make use of his 'Excellencie's own papers, and several other private collections of persons active with him in that service.'

BAKER, THOMAS, the Cambridge antiquary, was born at Crooke, in the parish of Lanchester, near Durham, September 14th, 1656. His father was George Baker, Esq., and his grandfather Sir George Baker, Knight, recorder of Newcastle. He was educated in the free-school at Durham, and afterwards sent, with his elder brother George, to Cambridge, where he became a pensioner at St. John's College, July 9th, 1674, and was elected fellow of his college upon Dr. Ashton's foundation in the month of March, 1679. Having applied himself with assiduity to his studies, he entered into orders in 1685, and in June, 1687, was collated by Lord Crew, then bishop of Durham, to the rectory of Long Newton in that diocese, which he cheerfully resigned in 1690, upon refusing to take the oaths to King William. He now retired to his fellowship at St. John's, in which he was protected till January 20th, 1717, when again refusing to take the oaths to a new government, he was ejected from it, in company with several other learned men. Mr. Baker retained a lively sense of this deprivation, which he particularly expressed by writing in the blank leaves of all the books which he afterwards gave to the college, 'Tho. Baker Coll. Jo. socius ejectus.' He was the more offended because he thought the master of the college, Dr. Jenkyns, might have screened him by connivance, as he had done in the preceding reign. Whiston (*Memoir of his own Life and Writings*, 2nd edit. p. 29) says that, after the death of King James II., Mr. Baker had some thoughts of taking the oaths to the government, but was prevented by the abjuration oath being also enjoined, which put an end to his deliberations on the subject. After his ejectment, he still kept his chambers in St. John's College, and resided there as a commoner-master during the remainder of his life. An annuity of 40*l.* a-year was at first his only subsistence after the loss of his fellowship. (Masters's *Memoirs of the Life of Baker*, p. 37.) The *Biographia Britannica*, however, says that, 'though he lost his fellowship, it appears that this was in part made up to him by the generosity of a friend. The celebrated Matthew Prior, not scrupling the oaths, or needing the profits of a fellowship, took the oaths, kept his fellowship, and gave Mr. Baker the profits of it.' (*Biogr. Brit.* edit. 1778, vol. i. p. 5, from a communication to the Rev. R. Robinson, of Chesterford, by Dr. Goddard, master of Clare Hall.) Cole, in his MSS., vol. xxiii. p. 149, doubts this fact, but says that Edward, the second Lord Oxford of the Harley family, certainly gave him continued assistance.

Dr. Heberden, who attended him, communicated a memorandum of the last illness and death of Mr. Baker, which he had taken at the time, to Mr. Cole, in a letter dated 13th October, 1777, still preserved among Cole's MSS. in the British Museum. Mr. Baker died July 2, 1740, and was buried in St. John's outer chapel, near the monument of Mr. Ashton, who founded his fellowship.

Being appointed one of the executors of his elder brother's will, by which a large sum was bequeathed to pious uses, he prevailed on the other two executors, who were his other brother, Francis, and the Hon. Charles Montague, to lay out 1310*l.* of the money upon an estate to be settled upon St. John's College for six exhibitioners. The right of disposal of them was reserved to himself during his life, and afterwards vested in the master and eight senior fellows of the college. Mr. Baker likewise gave the college 100*l.* for the consideration of six pounds a-year (then legal interest) for his life; and to the library several choice books, both printed and manuscript; medals and coins; besides what he left to it by his will, which were 'all such books, printed and manuscript, as he had, and were wanting there.'

All that Mr. Baker printed was, 1. 'The preface to Bishop Fisher's funeral sermon for Margaret, Countess of Richmond and Derby,' 8vo. Lond. 1708; 2. 'Reflections on learning, showing the insufficiency thereof in its several particulars, in order to evince the usefulness and necessity of revelation,' 8vo. Lond. 1710, which went through eight editions: both works were without his name.

His manuscript collections relative to the history and an-

tiquities of the University of Cambridge formed the great labour of his life, and chiefly entitle him to a notice here They amount to thirty-nine volumes in folio and three in quarto closely written; and are divided between the British Museum and the Public Library at Cambridge The former possesses twenty-three volumes, which he bequeathed to the Earl of Oxford, his friend and patron; the latter, sixteen in folio and three in quarto, which he bequeathed to the University. A minute account of the contents of every volume will be found in the 'Catalogue of Mr Thomas Baker's MS. Collections' appended to Masters's Memoir of him, and in the *Biographia Britannica*, vol i p 521-525 See also the catalogue of the Harleian Manuscripts for the contents of those deposited in the Museum

The assistance which Mr Baker gave to his contemporaries engaged in literary pursuits was valuable and extensive, such aid is more particularly acknowledged by Walker in his *Sufferings of the Clergy*, by Bishop Burnet, Archbishop Wake, Strype, Thomas Hearne, Professor Ward, Browne Willis, Peck, Le Neve, Bishop Kennet, Dr Conyers Middleton, Dr Waterland, Dr Zach Grey, &c The Society of Antiquaries have a portrait of Mr Baker, and there is another in the picture-gallery at Oxford

For the particulars of Mr Baker's life here recorded we are indebted to the *Biographia Britannica* already referred to, to Masters's *Memoirs* ... *Dr Zach Grey*, 8vo Camb 1784 Chalmers's *Biog Dict* vol iii p 341-350 and *Cole's MS Collections* ... Mus vol xxiii, xxvii, xxx, xxxi, with his Athen Cantab lett B In the second volume of Lord Orford's works p 339, is a life of Baker but erroneous and flippant nothing has been drawn from it for the present account

BAKEWELL, a parish and market town in the hundred of High Peak, and county of Derby The parish comprehends fifteen townships, and contains a population of 9,503

The town of Bakewell is of great antiquity It is first mentioned in the reign of Edward the Elder, who, according to the Saxon Chronicle in the year 921 marched with his army from Nottingham to Badecanwillan, which was the original name of Bakewell Edward in the same year ordered a 'castle' to be built in the neighbourhood which has generally been translated a burgh or town (see Lysons's *Magna Britannia*, vol v p 24) The Castle Hill is a knoll on the east bank of the river Wye opposite the bridge it retains traces of the keep &c Bakewell stands on the west bank of the Wye, about two miles above its influx into the Derwent According to Camden it derives its name from a mineral spring and an antient bath in the place which are supposed to have been known to the Romans 'The latter spring,' says the same authority 'bubbles up warm water, which is found by experience to be good for the stomach, nerves, and the whole body In the *Domesday Survey*, the name of the place is written Badequelle and was soon afterwards corrupted to that of Bauquelle, whence the change to its present name was very easy and natural There is no evidence to prove that Bakewell was a Roman *station* A Roman altar was discovered in the meadows about a mile south of Bakewell near Haddon it is at present on the porch of the old dining room at Haddon

William the Conqueror gave Bakewell to his natural son William Peverell The son of the latter having forfeited all his heritable property in the reign of Henry II, King John, soon after his accession to the throne, granted the manor of Bakewell to Ralph Gernon in whose family it remained for some time From the Gernons it came by marriage ultimately to Sir Roger Wentworth, who sold it in the reign of Henry VII to the Vernon family who afterwards disposed of it to the Duke of Rutland, in which family it still remains Bakewell had a bailiff and burgesses in the time of Elizabeth, but it never sent members to parliament In the town there is a cotton manufactory, established by the late Sir R Arkwright, which carries on business to a considerable extent A number of the inhabitants are employed in the lead mines and stone quarries which are found in the neighbourhood. The parish church, which is dedicated to All Saints is an antient and handsome structure, situated on an eminence The workmanship exhibits specimens of the style of three different periods It is built in the form of a cross and had once an octagonal tower in the centre, from which a lofty spire rose, but the tower and spire have been taken down. The western part of the nave is of plain Saxon architecture, but the external arch of the west door-way is enriched with Saxon ornaments. The rest of the building is in the Gothic style. The west part of the present church is probably as old as the eleventh century Part of it was built in the thirteenth, part in the fourteenth, but the greatest part in the fifteenth century In the interior of the church, against an arch on the south side of the nave, is a very curious monument to the memory of Sir Godfrey Foljambe and his lady The former died in 1376, and the latter in 1383 They were the founders of a chantry in Bakewell in the reign of Henry III, which was destroyed at the Reformation The monument, though somewhat defaced by time, is still remarkably beautiful The arms upon it are evidently those of Foljambe and Darley The figures are half length, and rather smaller than life They are carved in alabaster in alto-relievo, under a canopy (See Lysons's *Magna Britannia*) In the vestry, within the south transept of the church, is a monument, with the effigies in alabaster, of a knight in plate armour, mail gorget, and pointed helmet, with a richly-ornamented bandeau his pillow supported by angels According to tradition and the almost unanimous opinion of antiquarians this monument is that of Sir Thomas Wendesley, generally called Wensley who lost his life in the reign of Henry IV at the battle of Shrewsbury In the middle of the chancel are the tombs of several individuals of distinction

In the parish of Bakewell which is the most extensive in the county being more than twenty miles in length and upwards of eight in breadth, there are nine parochial chapelries besides several places of worship for Dissenters It is stated in the Domesday Survey to have had two priests In the first year of his reign King John granted the church of Bakewell then collegiate, with its prebends and other appurtenances to the canons of Lichfield to whom it was afterwards appropriated At that time there were three priests who constantly officiated in the church, and for whom a sufficient maintenance was provided In consequence of the above grant one of the prebendaries of Lichfield engaged to say mass for the souls of the king and his ancestors in the cathedral of that city In the year 1280 a complaint was made to the then Archbishop of Canterbury that the deacon and sub-deacon of the church of Bakewell then celebrated for its riches were so indifferently provided for that they were obliged to beg their bread in consequence of which that prelate ordained in the same year that they should eat at the vicar's table in consideration of which he was allowed ten marks per annum out of the rectory in addition to the twenty marks which he previously received yearly for the performance of his clerical duties The annual allowance to the deacon for clothes was a mark and ten shillings were given to the sub-deacon for the same purpose The patronage of the vicarage of Bakewell still belongs to the Dean and Chapter of Lichfield

The weekly market of Bakewell was formerly held on Monday but for the last thirty years it has been held on Friday Very little business of any kind is done in it Bakewell has a free school of antient date which is now kept in the town hall Chatsworth House, the residence of the Duke of Devonshire, is about three miles from Bakewell This splendid mansion was built by William, the first duke who bore that name It was erected on the site of the mansion built by Sir William Cavendish about the middle of the sixteenth century, and in which Mary of Scotland was imprisoned for thirteen years The present edifice was begun in 1687 and completed in 1706, but great additions have been recently made to it It stands on a gentle acclivity near the bottom of a high hill, which is richly covered with wood The situation is extremely beautiful. The river Derwent runs before the principal front There is a handsome stone bridge over the Derwent immediately in front of Chatsworth House The house is decorated with Ionic columns, and has a flat roof, surrounded by a neat balustrade Its form is nearly a square of 190 feet, inclosing a spacious quadrangular court In the centre of the court is a fountain, with a statue of Orpheus. The grand entrance is on the west, by a grand flight of steps to a terrace which extends the length of the whole building Verrio painted the ceilings, &c, and Cibber executed the statues The water works are not equalled by any in Europe, except those of Versailles One fountain throws up water to the height of ninety feet.

About two miles south of Bakewell is Haddon Hall, the property of the Duke of Rutland. It stands on a bold eminence on the east side of the river Wye, and overlooks

the beautiful vale of Haddon Haddon Hall is the most complete of our antient baronial residences now remaining Though not now inhabited, it is in a state of excellent repair It was erected at different periods The most antient part was erected about the time of Edward III part is of Henry VI's time, and the most modern part was erected in the reign of Queen Elizabeth It was acquired by the Rutland family in the reign of that queen by the marriage of Sir John Manners with one of the co heiresses of Sir George Vernon, to whose family it then belonged

Bakewell is 145 miles N N W of London and 22 N N W of Derby The population in 1831 was 1898 (See Camden's *Britannia*, Lysons's *Magna Britannia* Glover's *Derbyshire* *Beauties of England and Wales*, *Population Reports*)

BAKEWELL ROBERT a celebrated agriculturist and improver of live stock He was born about the year 17[illegible], at Dishley, in Leicestershire, and died there in the year 17[illegible] Though it does not appear that he contributed anything to literature, even on the subjects to which he devoted his life, his efforts particularly to improve the breed of sheep procured for him a widely extended reputation the [illegible] breed which he introduced is de[illegible]nated by the name of the Dishley or New Leicestershire breed He [illegible] to be distinguished from a Mr Robert Bakewell who in [illegible]08 published Observations on Wool with notes by Lord Somerville

BAKTCHISSARAI (or BAKTSHI SERAI) the Palace of the Gardens a Tartar town of the Crimea of which though it was formerly the capital [illegible] included in the circle of Simferopol which forms part of the Russian government of Taurida It is situated in 44 [illegible] N lat and 3[illegible] E long in a long deep valley [illegible] considerable mountains and is built in an amphitheatre manner upon each side of the sloping ground which [illegible] to the Tshuruk Su a rivulet that flows into the [illegible] A stranger on approaching [illegible] is [illegible] by surprise at the scene which breaks upon him for the town stands suddenly before him with its buildings [illegible] beneath impending rocks and precipices which seem to threaten it with instant destruction The sight of fountains streams smiling gardens and terraces intermingled with minarets and elegant tower shaped chimneys vineyards and groups of Lombardy poplars, soon render the first impression pleasing but this is not confirmed by an examination of the interior of the town The [illegible] (for the remainder are in general mere lanes [illegible] broad enough to admit a cart) which leads between a [illegible] low wooden shops from the gate of the town to the celebrated Khan Serai, the residence of the old Crimean [illegible] and which is about two miles in length, has scarcely a window or door without its Tartar tenant sitting cross legged within it, too intent upon his occupation to notice what may be passing around him The most attractive features of Baktchissarai are its numerous fountains, mosques medresse (or schools) and baths, and the Khan's palace The mosques, to the number of thirty one are mostly constructed of freestone, and ornamented with lofty towers of elegant appearance The Greeks Armenians and Jews have also several churches or synagogues in the town and besides two baths with domes, there are sixteen khans for the residence of strangers, or deposit of merchandise six of which are of freestone, and of spacious dimensions Including seventeen coffee houses the number of houses of public entertainment is thirty-eight, of shops there are about five hundred The manufactures of the town consist of Morocco leather, saddlery, and other leather articles, 'bouza,' a spirit distilled from millet, silks knives, woollens gold and silver plate, pottery, arms, tobacco pipes, &c The population, which at the time of Pallas's visit in 179[illegible] amounted to 5773, has nearly doubled itself during the last forty years, and is at present estimated at upwards of 11 000 No Russian is permitted to settle in the town, of which, under a ukase dating from the time of Catherine II, none but Tartars can become burgesses Of Greeks, Armenians, and Jews it contains about 1500, the Jews forming about three fourths of the number the remaining inhabitants are exclusively Tartars, whose dialect is purer than that of any of their kinsmen in the Crimea they, as well as the Greeks and Jews, are governed by their own laws and local magistrates, except in matters of police, with regard to which they are subject to officers appointed by the crown. Fountains have been erected in every quarter of the town, and add to its salubrity and ornament the water in one of them flows through ten pipes, and falls on handsome marble slabs, round which the Tartars collect four times a day for the purpose of performing their ablutions before they proceed to prayers in the neighbouring mosques The Greeks are confined to a distinct quarter which may truly be designated the stews of Baktchesserai 'The Khan Serai, or palace of the antient khans of the Crimea stands on a slope nearly at the eastern extremity of the town This prodigious range of eastern buildings, a perfect labyrinth of princely abodes and offices, courts and gardens fountains, corridors, and halls, has been restored to its former magnificence by the care of the Russian government the various structures which it incloses are roofed with red tiles and surmounted with numerous turrets which answer the purpose of chimneys On entering the first court, which is built upon a quay on the Tshuruk Su, a splendid mosque is seen on the left hand, lower down lie the stables, and on the right stands the spacious residence of the khans one story in height a collection of edifices varying both in elevation and dimensions Its front is furnished with an iron door enriched with parti coloured arabesques over which soars the double headed imperial eagle in place of the old Turkish crescent It opens upon the grand flight of steps leading to a splendid vestibule with floor of marble and over the door is sculptured an Arabic inscription to the following effect 'The master of this door is the conqueror of the surrounding soil, the mighty lord, Gadshy Gerai, son of the khan Mengli-Gerai Khan May God, our Lord vouchsafe unto the Khan Mengli Gerai, and to his father and mother, the gift of felicity in this world and in that which is to come!' In the vestibule itself are two noble fountains the waters of which are constantly flowing into marble basins they have also a long inscription over them which is thus wound up 'He that is tormented with thirst will raise his eyes across the stream that flows through pipes thin as his finger and read these lines But what is the invitation they bear? Come, drink ye of this limpid fount which flows from the purest of sources it brings you health!' The great garden attached to the palace is carefully kept up, and the area behind the mosque is used for a cemetery, where the poplar, nut and mulberry are intermixed with the tombs in which the khans and their kindred are interred One of these mausolea stands on an eminence, and is composed of a gilt cupola fifteen feet high supported by marble columns, which the celebrated Kerim Gerai Khan erected to the memory of his beautiful wife Dilara Bikez, a Georgian princess The singular Tchufut Kaleh or Jews Citadel is about four miles out of the town, and one half of the road to it runs by the side of a perpendicular and natural wall of rocks some hundred feet in height at one point behind this barrier is a deserted monastery and church, called the Uspenki Monastyr, or monastery of the Virgin's Ascension in which there are habitations for seventy brethren hewn out of the solid rock This place is held in high veneration among the people of the country, and attracts vast numbers of pilgrims After quitting the line of wall the road traverses a very precipitous district to the 'Valley of Jehosaphat,' where the Jewish cemetery stands with its grove of cypresses and several monuments in white marble from this valley a short but exceedingly steep ascent leads to the gate of Tshufut Kale The place was the site of an old fortress constructed by the Genoese on the summit of a rock surrounded by precipices, it is a clean town inhabited solely by Karaitish Jews to the number of about 1200, and consequently contains nearly one third of the whole of this sect, whether in Europe or Asia They live isolated from the rest of mankind, cleave rigidly to their antient rules and usages, are governed by their rabbis as well in temporal as spiritual matters, and are unmolested by any interference on the part of the Russian government their integrity has passed into a proverb among their neighbours they deserve credit for the pains they bestow upon the education of their children, and for the exemplary life which they lead They trace the separation of their sect from the rest of the Hebrew nation to the time of the Babylonish captivity they never intermarry with strangers, and depend upon trade for their livelihood

BA'KHTEGAN, is the name of a salt lake in the province of Fars, or Persia Proper It seems most probable that this lake lies about east of Shiraz but the distance from Shiraz does not appear to be certain it may be from forty to

sixty miles, but good authority is wanting. It is now generally called Deryâ-i-Nîrîz, or the Lake of Nîrîz, from the principal town in its vicinity. The designation of 'Lake of Bakhtegân,' which the old eastern geographers have given it, is derived from an antient village in the neighbourhood, the ruins of which are said still to exist to the eastward of Kheir. According to Hamdallah Mastaufi, a Persian geographer quoted by Sir W. Ouseley (*Travels*, ii. 171-172), the Lake of Bakhtegân is twelve farsangs in length, and seven in breadth, and its circumference thirty-five farsangs. Kinneir (*Geographical Memoir of the Persian Empire*, p. 60) gives it a circumference of not more than twenty farsangs. The river Kur (of Fars), better known under the name Band-Emir or Bundemir, falls into it. During summer the lake is nearly dry, and its bottom becomes encrusted with salt, which is collected by the people who live on its borders. This salt is esteemed remarkably fine, and is much used throughout Fars.

BAKING. [See BREAD, PORCELAIN, and SUGAR.]

BAKU or BADKU. The territory of this name, which is confined to the peninsula of Abosheron or Abshora, on the west side of the Caspian Sea, forms part of the conquests made by the Russians in 1805, and lies to the north of the former Khannat of Shirvan, to which it has since become an appendage. Besides the town of Baku, it contains thirty-five villages, and, including the town, 19,000 inhabitants; among whom Klaproth states that there are 1000 Turcoman families. Their stock, according to Gamba, is composed of 500 camels, 3000 horses, 5000 oxen, and 42,000 sheep; and he adds that there is no spot in this quarter of the globe more favourably situated for carrying on an extensive traffic with the East than Baku the capital. Lentz, in his report upon a mission into these parts in the year 1830, speaks of the peninsula, though elevated, as having no height within it which exceeds 1000 feet; in general, the soil is of a rocky nature and sterile, without one attractive spot in its whole extent, destitute of a single stream, and without any water but what is drawn from wells, and this has a salt disagreeable flavour. Not a tree exists upon it; but portions of the territory, we learn from Georgi, have a layer of mould on which wheat, barley, and maize, melons, fruits, rice, and cotton, and, on the highest ground saffron, are raised. In some parts, too, opium is prepared from poppy-heads; and a species of red and highly-savoury onion, which is not found elsewhere, is cultivated under cover.

Besides the gaseous eruptions proceeding from the saturation of the soil with naphtha, the peninsula is celebrated for numerous volcanoes, which discharge volumes of mud. One of the most violent eruptions, says Lentz, broke out seven miles to the south-west of the town, in December, 1817. A column of flame 1,230 feet wide in its greatest diameter was vomited out, accompanied by the discharge of large stones and jets of water; it lasted, with a gradual diminution of its height, eighteen days, and formed an immense field of mud interspersed with conical mounds, one of which is fifteen feet high, and still continues to emit bubbles several inches in diameter, at intervals of a few minutes. The height of this mass of mud is 815 Paris feet (868 English). Near Baku itself there is a similar volcano, with its field of mud, which, M. Lentz was informed, dates also from the year 1817. The peninsula is, however, better known for the superabundance of naphtha, with which its soil is charged, particularly in the neighbourhood of the capital. It not only streams spontaneously through the surface, but rises wherever a hole is bored. It is of two descriptions, black and white; and its principal sources are situated, according to Colonel Rottiers, at a spot called Balegan, about ten versts (six miles) from Baku: 'it appears,' says he, 'to undergo distillation as it ascends to the surface, and thence falls down the sides of the mountains into reservoirs, constructed at some unknown period. It is conjectured, that entire forests of resinous trees were once ingulphed by some violent effort of nature, and that their decomposition is the origin of this inflammable liquid. The colour of the oil is black, but it shines with a reddish tint when the sun's rays are upon it.' He observes, that the natives use it for burning as a light, and coat their roofs with it. 'Not far from the same spot, a spring of white oil gushes out from the foot of a hill. It readily inflames and burns on the surface of the water, and in calm weather the people of the country amuse themselves by pouring whole tons of it into a bay of the Caspian; they then set fire to it, and it is borne out of sight, giving the waves the appearance of a sea of fire. Our finest illuminations and fireworks sink into insignificance when compared with this splendid exhibition.' The whole of these naphtha springs belong to the government; and in 1820 were rented by an Armenian for 52,000 silver roubles (about 8200*l.*). The weavers and other poor persons of the neighbourhood obtain a cheap light, and abundance of heat for cooking, by driving a clay-pipe or hollow reed, steeped in lime-water, into the ground on which their dwelling stands, and setting fire to the gas which rises through it. The Persian Ghebers, or fire-worshippers, who sojourn in this quarter, bottle the gas for the purpose of sending it to distant connexions in their native country, as it is found to retain its inflammable qualities for months together; and the inhabitants of Atecshjah employ it as fuel for their lime-kilns and for consuming the remains of their relatives, as well as instead of wood, coals, or lamps. Both Reneggs and Rottiers describe the Asjur-Meisjan, or burning field, near Baku; it is a hollow expanse full of fissures, and coated with white sand and grey dust, in which particles of sulphur abound. Some fissures are seen burning, some smothering, and others sending naphtha vapours. There is a boiling lake too, not far from the town, which is in constant motion, and emits a flame altogether devoid of heat. 'After the warm showers of autumn,' observes Rottiers, 'when the atmosphere is scorching, the whole surrounding country appears to be on fire, and it frequently rolls along the mountains in enormous masses and with incredible velocity. At other times it stands motionless. In October and November, the moon being bright, an illumination of a brilliant azure tint lights up the whole horizon in the west. Mount Soghda-Ku (the Mount of Paradise, a promontory of the Caucasian range) is also clothed at times in a similar sheet of flame; but on these occasions it never descends into the plain country. On the other hand, if the night be dark, innumerable jets of flame, sometimes isolated, and at others in masses, cover all the low ground, leaving the mountains in obscurity. The fire does not burn, and when in the midst of what every one would conceive to be a devouring element, it is impossible to detect the least heat in it. The reeds and grass are no ways affected by it; and I remarked, during these fantastic conflagrations, that the empty tube of my barometer seemed more particularly as if on fire; whence I am disposed to regard the whole phenomenon as connected with electricity. In such a region as this, one might well be tempted to become a Gheber one's self.' These appearances never occur when the wind blows from the east. In antient times, the burning field was one of the most celebrated Ateshyahs, or shrines of Grace, among the Ghebers or Parses; it was a spot to which thousands of pilgrims resorted; another Mecca or Jerusalem, where the fire-worshipper purified himself from mortal stain previous to the days of Shah Abbas' relentless persecutions. A few adherents of this sect, who are thinly scattered over the south of Persia, the Malabar coast, and the banks of the Ganges, find their way from time to time to the Atecshyah of Baku, which lies about ten miles from the town, and pass five, seven, or ten years on the spot; the term being regulated by the degree of their anxiety to acquire more or less of the character of sanctity among their countrymen. Here they spend their days in worshipping the sacred fire, in praying, and penitential exercises. Gamba describes the place as a walled quadrangle, with an altar raised on a flight of steps in the centre. At each of the four corners stands a chimney, five and twenty feet in height, from which issues a flame three feet in length. The walls of the sanctuary are surrounded by twenty cells or more, where the priests and Ghebers reside: the cells were kept very clean, and their tenants had a dark complexion and emaciated appearance: some were closely wrapped in a cotton garment, and others were wandering about stark naked, with the exception of a woollen girdle about their loins. Each cell contained three earthen pipes inserted in the floor, for the purpose of procuring gas for domestic and other uses. The penances to which they have recourse are so severe, that scarcely one individual out of ten ultimately survives them.

The town of Baku lies at the southern extremity of the peninsula of Abosheron, where the Caspian is land-locked by two islands, which render the roadstead a safe anchorage even close upon the shore. The walls of Baku were once washed by the Caspian; but they are at present

about fifteen feet from it; in other places the sea has gained upon the land, and the ruins of antient buildings are discovered at a depth of eighteen feet and more. The town is walled, and built upon a declivity, the summit of which is crowned by the palace of the former Shahs, and commands some delightful prospects. The streets are narrow and tortuous, and the houses ill-constructed and of small dimensions, with flat roofs coated with naphtha as a substitute for lead. An antient and lofty tower, which goes by the name of the Virgin's Tower, is the most striking object in the place. Baku possesses several spacious mosques, public squares, marts, and caravansarays, besides a Greek and an Armenian church, and some Tartar schools. Its inhabitants are between 3500 and 4000 in number, and its principal exports consist of naphtha, saffron, cotton, silk, opium, rice, and salt. The duties of customs produce 30 000 silver roubles (about 4750l.) a year. The fisheries of the adjacent island of Sallan are of some importance. 40° 22′ N. lat., 49° 40′ E. long.

BALA, a town in the county of Merioneth, in North Wales, 180 miles W.N.W. of London. It is situated on the northern extremity of the lake from which it derives its name. It has only one main street, which is very wide; the houses are generally low. At the south-east end of the town is a high artificial mound, which is generally supposed to have been the site of a small fortress. It is a place of considerable trade in flannels, stockings, gloves, &c., in the manufacture of which articles most of the inhabitants are constantly employed. It has a weekly market on Saturdays and five annual fairs. The assizes are held here and at Dolgelly alternately. It is an incorporated town by prescription, and the government is vested in two bailiffs and a common council. Neither it nor any other town in the county however ever had the right to return a member to parliament. It has no public building worthy of notice. There is an endowed grammar school on the foundation of which thirty boys are now clothed and educated. Bala is a place of great antiquity: there are the remains of three Roman camps in the neighbourhood, which seem to have been used as stations before the total subjugation of the Ordovices. Bala is in the parish of Llanykil, a village about a mile from the town. The number of houses is 10[illegible], and the population in 1821 was 11[illegible]3. In the parliamentary returns for 1831 the population of Bala is not given separately, but conjointly with that of the parish, which is 235[illegible], of whom 1[illegible]31 are males, and 122[illegible] females.

BALA POOL or PIMBLE MERE (called by the natives Llyn Tegid), a lake in the county of Merioneth. Bala is the largest lake in Wales, being four miles in length, from N.E. to S.W., but less than one mile in breadth. Its average depth of water is forty feet, but it sometimes rises above its usual level, and overflows the adjoining valley of Edeirnion. The bottom of the lake is mostly rocky, and the water is so pure, that the nicest chemical tests can detect scarcely any quantity of foreign admixture. From the N.E. part of this lake issues the river Dee. The fishery of the lake belonged in the thirteenth century to the Abbey of Basingwerk, but is now the property of Sir William Watkins Wynne, who has several fishing lodges on its margin. It is well supplied with pike, eels, red trout, and the fish called *gwyniad*, but contains no salmon. The usual mode of fishing is by angling from the shore. The scenery in the immediate neighbourhood of the lake has nothing remarkable about it, though it is pleasant and varied; but the distant view is magnificent. A Roman road passed near the margin of this lake, and some very curious tumuli are still to be seen in the vicinity. It is sometimes, though not often, frozen over, and when covered with snow has been mistaken by travellers unacquainted with the localities of the district for an extended valley or plain. The principal works which have been consulted in this and the preceding article are, Gough's edition of Camden's *Britannia*, *Beauties of England and Wales*, Pennant's *Tour through Wales*, Aikin's *Tour through Wales*, Evans's *Letters on North Wales*, Warner's *Walk through Wales*, Carlisle's *Topographical Dictionary of Wales*, vol. ii., *Parliamentary Reports*, &c.

BALACHNA, or BALAKNA, one of the circles of the province of Nishegorod, in the eastern part of Great Russia, lying between 55° 59′ and 56° 35′ N. lat., and 4[illegible]° 10′ and 41° E. long., principally on the right bank of the Volga. Its surface is hilly and irregular, and the thickly-wooded acclivities of the Balakna-Gora range bound it on the left bank of the Volga, both sides of which river are here diversified by hills and valleys. The land is highly cultivated even to the very edge of the woods, and the plains produce rich crops of flax, hemp, and corn, as well as afford pasturage for considerable numbers of cattle. Its population is between 90,000 and 100,000 souls. The chief town of this circle, which bears the same name, is situated on the right bank of the Volga, where the rivulet, called the Usola, falls into that river, and about twenty miles north-west of Nishny Novgorod. The wooden walls and towers which once surrounded it were destroyed by fire in 1730: its present inclosures consist of earthen ramparts and a deep ditch. It contains fifteen churches, a monastery, and a population of about [illegible]500 individuals, who carry on a brisk traffic in grain, linens, and other manufactures, and construct barks for the navigation of the Volga. The salt springs in its vicinity, which were first rendered available in the year 153[illegible], and in process of time were raised to the number of fifty, have been abandoned under a government prohibition issued in 175[illegible]. Balachna lies in 56° 1[illegible]′ N. lat., and 43° 30′ E. long. Among other towns in this circle the most deserving of notice are Gorodistshje, belonging to the Orloff family, which has three churches, a monastery, where the celebrated Alexander Nevskoj (see vol. i. of this work, p. 306), Grand Duke of Russia, spent some years as a monk—(population about [illegible]100); and Nikelskoe Selo, on the left bank of the Volga, a manufacturing town, noted for fancy articles of japanned wood.

BALACLAVA or BALUKLAVA, the Symbolōn Limen (Συμβόλων λιμήν) of Strabo (p. 308), probably the Καλὸς λιμήν (Good Port) of Pomponius Mela (ii. 1), and in more modern times the Ishembalo, and subsequently the Cembalo or Bella-chiave (whence its present name) of its Genoese conquerors. It is a port on the S.W. coast of the Crimea, on a small bay of the Black Sea, in the circle of Akmetshet, which forms part of the Russian province of Taurida. The Turks, by whom it was inhabited when the Crimea fell into the hands of Russia, having abandoned it, Catherine II. made it the head-quarters of a regiment composed of 2000 Albanians and Greeks, whose descendants still compose the coast guard in these parts, occupy the town, which lies on a hill close to the harbour, to the number of about 1700, and live in the peaceable enjoyment of their native customs and mode of life. It has an excellent harbour, capable of receiving ten or twelve sail of the line, and with so narrow an entrance (see Strabo), that scarcely more than one vessel can enter it at a time. In 1796, however, the port was closed against merchant ships, as the only means of putting down the extensive smuggling which its position had encouraged. The ruins of an old Genoese fortress on an almost inaccessible height overlook the harbour's mouth to the east of the town, and the rocky substructure on which it stands is excavated into spacious magazines and other apartments, all with stuccoed sides. In the plain below are the ruins of churches and mosques, which indicate the former opulence of the port. The streets are narrow and paved with the limestone which enters so largely into the composition of the adjacent hills. Balaclava has at present but one church, and its inhabitants, who, were they possessed of greater industry, might cultivate with profit a soil well adapted for the growth of grain and grapes, subsist principally on the traffic they carry on with other towns in the Crimea. 44° 30′ N. lat., 33° 36′ E. long. (Wailand.)

BALÆNA (from the Greek φάλαινα), the Latin name of the common or Greenland whale, and adopted by naturalists as a generic term, to comprehend all the other species which agree with it in their zoological characters. [See WHALE.]

BALÆNOPTERA, this term was invented by De Lacépède, to denote those whales which are distinguished by having an adipose fin on the back, whence they are called finners by sailors, and which he proposed to separate from the other balænæ for the purpose of forming them into a distinct genus. The character, however, upon which he proposed to make this separation is utterly void of importance, and exercises no assignable influence upon the habits and economy of animal life. His division is consequently vicious, and cannot be admitted into a natural or philosophical system of mammalogy, at least for any other purpose than as a matter of simple convenience. The word itself is compounded of the terms balæna, a *whale*, and πτερόν, a *wing* or *fin*.

BALAGHAUTS, the name given to an extensive and fertile district in the south of India, and which is so called in consequence of its being situated *above the Ghauts*, a stupendous mountain wall which rises abruptly from the low country, and supports as it were the table land beyond. This table land, which is sufficiently elevated to produce a sensible effect upon the temperature, extends from the river Krishna to the southern extremity of Mysore. The term Balaghauts does not however in its more usual acceptation, embrace so extensive a region, but is restricted to the territories acquired by the government of the East India Company under a treaty with the Nizam, concluded in October 1800. This district has since been divided into the two collectorates of Bellary and Cuddapah, which comprise the conquests of the Nizam acquired in his wars with the Rajah of Mysore in 1792 and 1799. This territory is sometimes described as 'the ceded districts.' It forms part of the presidency of Madras. Its northern boundary is well defined by the Krishna and Toombuddra rivers; the southern portion consists of valleys lying between the eastern ghauts at Gurrumcondah in 13° [illegible]' N lat and 7[illegible]° 31' E long and extending to Sera in the Mysore territory, which last mentioned town is situated in 13° 44' N lat and 76° [illegible] E long.

With the exception of the two rivers which form their northern boundary these collectorates do not contain any large streams, a circumstance which is owing to their elevated position. They have, consequently, always been subject to frequent droughts.

The soil of the Balaghauts is in general good, and in some parts, particularly on the western side, where a black earth occurs, is so fertile that if once well cleaned and properly ploughed, it will require but little further labour for twenty years than that of harrowing before the seed is sown. The system of drill husbandry is universally pursued. This rich soil is pure black mould, and occurs in some places twelve feet deep; it does not contain any undecayed vegetable matter. The expense and labour necessary for first clearing this land are very considerable, so that the poorer cultivators are frequently obliged to settle upon less fertile soils, which may be cleared with less labour and with less costly implements. This poorer soil consists sometimes of red gravel, which is occasionally mixed in uncertain proportions with the black mould already described, and with sand and calcareous stones. These less fertile farms are sometimes manured by folding sheep upon them. There is much poor waste land in these collectorates but in the more fertile parts two or three days rain suffices to insure an abundant harvest. The rainy season should occur in June, and if it fails, the whole crop is placed in danger. Much mischief is also experienced at times by heavy rains in September and October, which burst the tanks and sweep the growing crop from the ground. By a survey made in 1807 it was found that the Balaghaut ceded districts contained [illegible] tanks and wells, nearly 11,000 of which were out of repair. This circumstance may afford some idea of the supineness of the population, a disposition that may be in a great measure, attributed to the frequent presence of hostile armies, which were accustomed to destroy such works of public utility. When first the country came into the possession of the British, it was in a state of desolation from which it had scarcely began to recover when a severe drought, which continued throughout the years 180[illegible] and 1804, destroyed the vegetation, and a great proportion of the cattle perished in consequence. On this occasion the inhabitants were only saved from the horrors of absolute famine through the exertions of Sir Thomas Munro. In the neighbouring district under the government of the Nizam, the distress from this cause was extreme. Notwithstanding this warning we find so little effort made to avert similar calamities in future, that the wells and tanks were left unrepaired in the proportion already mentioned. The following year 1805 was one of great abundance, and although bad seasons have since occasionally been experienced, the district has been steadily and greatly improving. The productions of the country beyond the food required for the population, consist principally of indigo, sugar and cotton; the first and last mentioned of these articles are exported in considerable quantities. Cattle, sheep, and goats are reared in great numbers. The central and eastern divisions contain several diamond mines, and it is from these, and not from mines in their own district, that the diamond merchants of Golconda have been supplied.

The inhabitants of the district are generally a hardy and laborious race, and are not so peaceably inclined as the natives of the country below the ghauts. When the English first acquired the territory, every male inhabitant carried arms and was expert in the use of arms; their villages, too, were for the most part fortified, and so great was the state of anarchy into which they had fallen, that the inhabitants of neighbouring villages were frequently engaged in conflicts with each other, while the troops of the superior government were continually occupied in putting down insurrections. Assassinations were of such common occurrence, that scarcely any family could be found that had not suffered from this cause, and that had not at the same time been guilty of the crime.

Previous to the transfer of the district to the Company, the cultivators had not any permanent interest in the soil, which was monopolized by the government; even the houses were the property of the ruling power. The people were consequently without inducement to make improvements, and were continually moving about from one situation to another.

Under these circumstances, it was fortunate for the natives that they were placed under the administration of so enlightened and benevolent a man as Sir Thomas Munro. By his able and conciliatory management the inhabitants were in a few years, converted from small, independent hordes of lawless freebooters into peaceable subjects and industrious men. The benefits of the system which he adopted are further apparent from the increase of revenue derived by the Company's government in this district, which was raised in seven years from 10,06,593 to 15,17,272 pagodas, as well as from the great addition made during the same period to the number of the inhabitants, which addition amounted to one fourth of the entire population that existed at the time of the cession in 1800. This increase arose in a great degree from the return of persons who had emigrated during the troubles of the former government. From a census made in 1806, it appeared that the district contained 1,917,376 inhabitants, among whom the number of males exceeded that of the females in the proportion of eleven to ten. The greatest part of the population are Hindus, but there is a considerable proportion of Mahommedans among the inhabitants of Adoni, Bellary, Cuddapah and Curnoul, which are the chief towns in the district. (Rennell's *Memoir of a Map of Hindustan*; Mill's *History of British India*; *Reports of the Committees of the House of Commons on the Affairs of India*.)

BALANCE, a corruption, probably, of the middle Latin word *Valentia*, used (see Ducange) to denote price or value, whence came *valance*, mentioned by the same author, who considers the word *Balancia*, or *Bilancia*, to be a reconstruction from the common idiom. The word *ballancia* is found in the thirteenth century. From meaning the worth or value, it came to signify any instrument used for ascertaining it, but particularly when weight was the quality referred to. Hence came the general meaning of the term in which it stands for any state of things under which opposing circumstances just destroy the effects of each other, as when we speak of a balance of power, of good and evil, &c. Hence also the commercial meaning in which the balance is not the state just mentioned, but the sum of money which must be added to one or the other side of an account in order that the debts and credits may be *balanced*, or of equal amount. As an instrument of common use, the term *Scales* is more frequently applied. In philosophical apparatus the word is applied to any machine by which an effect is measured, at the pleasure of the inventor, for there is no other rule. For the hydrostatical balance, see GRAVITY, SPECIFIC; for the torsion balance, see TORSION, &c. [See also STEEL YARD, LEVER, WEIGHING MACHINE, SPRING-BALANCE.]

The instrument most commonly known by the term balance is a superior sort of scales, executed with all the precision necessary for the nicest operations of physics, and particularly of chemistry. We shall therefore confine ourselves to state the circumstances which are necessary to a good performance of the philosophical balance.

A simple straight lever, balanced by weights resting immediately upon it, so that the centre of gravity falls on the fulcrum, is at rest in every position, for no motion will change the position of the centre of gravity. The same may be said where some of the weights hang by strings, firstly, on the mechanical principle that any force may act

at any point of its direction, and secondly, by a geometrical theorem, which points out that when weights either hang by strings from different points in a straight line, or when some are on the straight line, and others hanging from it, if the centre of gravity of all the weights be ever in the same vertical with the fulcrum, no motion round the fulcrum can remove it out of that vertical. And all that is necessary to a perfect equilibrium is, that the centre of the weights (that of the machine included) should fall directly under the fulcrum.

The preceding rests upon the hypothesis of a system so contrived, that every weight shall hang as it were by a string, and from a straight line, so that all the strings shall approach to, or recede from, the vertical passing through the fulcrum, at the same time and in the same proportion. But if the line from which the weights hang be bent, or if any weight be so attached to the system that it cannot be considered as hanging from a given point, the equilibrium which subsists in one position will not subsist in another. And this, namely, that there should be only one position of equilibrium, is not only required for the use of the instrument, but practically necessary in its construction, as an *indifferent* balance, like that just described, would be difficult of execution.

A balance should be *sensible*, meaning that, when poised, a very small addition of weight to either scale should make it turn; that is, overcome the necessary friction and adhesion of the pivot or knife edge on which it rests. If there were no friction the smallest weight would make it turn. The first condition of sensibility, therefore, is the diminution of friction to the utmost possible extent. This is done by making all the parts of a high polish, and by placing the beam upon the support by means of knife edges attached to its sides. But in order that the knife edge may not become blunt, the beam is not allowed to rest upon the support except when the instrument is in use; at other times it is raised by two arms which just remove the knife edge off the support, and these arms can be let down by means of a handle. We shall presently come to the other conditions of sensibility.

A balance should also be *stable*, that is, should, on being disturbed, immediately return and oscillate about the position of rest. This is done by making the centre of gravity of the whole apparatus fall below the point of support. But as stability is not so difficult to attain as sensibility, the latter must be most attended to. The scales in the shops are sufficiently stable, but few are very sensible.

Neglecting the particular nature of the method of support and circumstances of mere conformation, the balance may be represented as follows (see Whewell's *Elementary Mechanics*, Cambridge, 1833):—



C is the point of support, showing a section of one of the knife-edges, which rests upon a smoothly polished plane; G the centre of gravity of the whole beam, A and B the points of suspension of the scales, D the point of coincidence of AB and CG. The stability of two balances is thus compared. Suppose that the same small disturbance be given to both, say the beam is inclined one degree in both. Then if the force with which the first endeavours to recover its position be double or triple that of the second, the stability of the first is double or triple that of the second. To compare these forces, construct the following formula for both:

To *weight of both scales* × *CD* add *weight of beam* × *CG*.

For instance, suppose two balances as follows:—

	First.		Second	
Arm AD	12	.	14	inches
CD	2	.	3	..
CG	1	.	2	..
Weight of beam	30	.	50	ounces
Do. both scales	24	.	30	..

Then will the stabilities of the first and second be as $24 \times 2 + 30 \times 1$ to $30 \times 3 + 50 \times 2$, or as 78 to 190.

The sensibility is estimated by computing the angles through which very small equal weights would incline the balances. If, for example, a grain put into a scale of each inclines the first four degrees, and the second only two degrees, the first is twice as sensible as the second. To compare the sensibilities, multiply the length of the arm of each by the number which represents the stability of the other in the formula just given. Thus the sensibilities of the preceding balances are as 12×190 to 14×78, or as 2280 to 1092.

It would not be worth while to work very accurately by the preceding formula; but the general rules deducible from them are valuable:

1. Other things remaining the same, the longer the arm the greater the sensibility.

2. The arm having a given length, every increase of sensibility is a decrease of stability, and *vice versa*.

3. Additional weight, either to the scale or beam (the arm remaining the same), is favourable to stability, and unfavourable to sensibility.

4. Whatever does not alter the length of the arm cannot be favourable to both.

In all that precedes it must be recollected that in the weight of the scales is included whatever may happen to be in them. Consequently every balance has different degrees of sensibility and stability with the different weights which are employed. But as, generally speaking, the quantities weighed in delicate balances are small, a balance which is highly sensible when no weight is in the scales, will be so for every weight with which it is intended to use it. A balance made by Ramsden for the Royal Society, weighing ten pounds altogether, turned with the ten millionth of that quantity, or with about the thousandth part of a grain.

A balance should be made as much as possible of brass. Steel and iron are apt to acquire magnetic properties. It should also be inclosed in a glass case with doors for communication, and when not in use a portion of muriate of lime, or any other strong absorbent of moisture, should be placed in the case. A needle is usually attached to the beam, which points either exactly upwards or downwards when the beam is horizontal. A graduated scale of degrees is attached to the frame work of the instrument in such manner that the needle may point to zero when it is vertical. The oscillations of the balance, when the centre of gravity is near to that of suspension, will be very slow, and by means of the needle it may be ascertained before the balance comes to rest, whether horizontal equilibrium has been obtained; for in that case it will describe equal arcs on the graduated scale on each side of the zero point; while, if either scale be overloaded, the needle will move through more degrees on the side of that scale than on the other.

All that precedes has reference to the theoretical construction of the instrument, and supposes that a perfect balance can be made, so that equal weights shall counterpoise each other. This is certainly impossible in practice, though one balance may be nearer than another. The following simple method, imagined by Borda, overcomes this difficulty, provided only the balance be sensible and very well constructed at the knife edge. Instead of weighing, say a portion of salt against brass weights, weigh both the salt and the weights against some third substance, say, for distinction, iron weights, as follows:—call the scales A and B, weigh the salt in A against iron weights in B till there is a counterpoise, then remove the salt and substitute the brass weights in A until there is again a counterpoise. It is now of no consequence whether the weight of iron was equal to that of the salt or not, the weight of the salt and of the brass must be the same, because, under the same circumstances, the two counterpoise the same weight of iron.

(For more detail on this subject, see the treatises of Biot and Pouillet on *Physics*.)

BALANCE OF ROBERVAL, an ingenious mechanical paradox, which may be more usefully described in the article LEVER.

BALANCE (of a watch), the circular hoop which is made to vibrate by the hair spring, and supplies the place of the bob of the pendulum in a clock. [See WATCH.]

BALANCE OF POWER. The notion upon which this phrase is founded appears to be the following. When a number of separate and sovereign states have grown up beside each other, the entire system which they constitute may be conceived to be *in equilibrio*, or evenly balanced, so

long as no single one of them is in a condition to interfere with the independence of any of the rest.

But as in such a system of states so connected there are generally a few which may be considered as leading powers, it is by these being made to counterpoise each other that the balance is principally maintained. It is in this way only that the safety of the smaller states can be secured. Thus, in the antient world, after the destruction of Carthage, there was no power any where left strong enough to cope with Rome; and the consequence was that one after another the countries that yet remained sovereign powers fell under her dominion until she became the mistress of the antient world. The gradual subjugation of nearly the whole of India by Great Britain and the establishment of the late widely extended empire of France on the continent of Europe may be quoted as other examples of the effect that results from the destruction of what is termed the balance of power.

On the contrary, so long as the power of one great state (however far surpassing in extent of territory or other resources of strength and influence many of those in its neighbourhood) can be kept in check, or in other words balanced, by that of another, the independence of the smaller states is secured against both. Neither will be disposed to allow its rival to add to its power by the conquest or absorption of any of these minor and otherwise defenceless members of the system. And in this way it happens that each state, whether great or small, has an interest and a motive to exert itself in the preservation of the balance.

This point of policy is so obvious that it must have been acted upon in all ages, by every assemblage of states so connected or situated as to influence one another. There may have been less or more of skill or wisdom in the manner of acting upon it, or the attempt to act upon it may have been more or less successful in different cases; but to suppose that its importance had been overlooked by any states that ever existed in the circumstances described would be to suppose such states to have been destitute of the instinct of self-preservation.

Mr. Hume (see his 'Essays,' part ii., essay 7th) has shown conclusively, in opposition to the opinion sometimes expressed, that antient politicians were well acquainted with the principle of the balance of power, although, as far as appears, they did not designate it by that name. 'In all the politics of Greece,' he observes, 'the anxiety with regard to the balance of power is apparent, and is expressly pointed out to us even by the antient historians. Thucydides (lib. i.) represents the league which was formed against Athens, and which produced the Peloponnesian war, as entirely owing to this principle; and after the decline of Athens, when the Thebans and Lacedemonians disputed for sovereignty, we find that the Athenians (as well as many other republics) always threw themselves into the lighter scale, and endeavoured to preserve the balance. They supported Thebes against Sparta till the great victory gained by Epaminondas at Leuctra; after which they immediately went over to the conquered, from generosity, as they pretended, but in reality, from their jealousy of the conquerors.' 'Whoever,' he adds, 'will read Demosthenes' oration for the Megalopolitans, may see the utmost refinements on this principle that ever entered into the head of a Venetian or English speculatist.' He afterwards quotes a passage from Polybius (lib. i. c. 83), in which that writer states that Hiero, king of Syracuse, though the ally of Rome, yet sent assistance to the Carthaginians during the war of the auxiliaries, 'esteeming it requisite both in order to retain his dominions in Sicily, and to preserve the Roman friendship, that Carthage should be safe; lest by its fall the remaining power should be able, without contest or opposition, to execute every purpose and undertaking. And here he acted with great wisdom and prudence; for that is never on any account to be overlooked, nor ought such a force ever to be thrown into one hand as to incapacitate the neighbouring states from defending their rights against it.' 'Here,' remarks Mr. Hume, 'is the aim of modern politics pointed out in express terms.'

It must be confessed, however, that the preservation of the balance of power was never so distinctly recognized and adopted as a principle of general policy in antient as it has been in modern times. The systematic observance of the principle of the balance, subsequently to the subversion of the Roman empire, may be first traced in the conduct of the several Italian republics. It appears clearly to have formed part of what may be called the public law of these rival sovereignties from about the commencement of the fifteenth century. From the commencement of the next century it became an influencing principle in the general policy of Europe.

The leading rule by which it has ever since then been attempted to maintain the balance in question, may be stated to be the opposing of every new arrangement which threatens either materially to augment the strength of one of the greater powers, or to diminish that of another. Thus, first Austria, and afterwards France, have been the great objects of the jealousy and vigilance of the other states of Europe. While the supremacy of the Empire was united in the person of Charles V. to the monarchy of Spain, that prince was naturally regarded as formidable both by France and England. If he could have effected a permanent alliance with either of these powers, or could have even induced one of them to stand aside and acquiesce, there can be little doubt that he would have taken that occasion to attempt to crush the other. The vast possessions of Philip II. appeared to call for the same watchfulness and opposition, in regard to his projects, from all other states that valued their independence. In later times, the ambition of Louis XIV. of France, and the scheme concerted under his management to unite in one family the crowns of France and Spain, drew upon him in like manner, the general hostility of Europe. There can be no manner of doubt, that, if the designs of this sovereign had not been thus resisted, France would have become a century earlier than it did the mistress of the continent, and the independence of all other nations would for a time at least have been extinguished. Our own liberties, as founded upon the Revolution of 1688, could in such circumstances, certainly not have been maintained.

It is nothing to the purpose to argue that the maintenance of the balance of power has often involved the nations of Europe in contests with each other which, if they had disregarded that principle, would not have taken place, at least not at the time. It may be better that all nations should be subject to one than that each should preserve its independence; but that is not the question here. If nations will be sovereign and independent they must fight for their sovereignty, as men must do for any other possession when it is attacked.

But some persons appear to think that we in this country have nothing to do with the maintenance of the so-called balance of power in Europe, because we live not on the continent, but in an island by ourselves. If the whole continent were reduced under subjection to a single despot we certainly should not long remain independent. The protection which we now possess from the sea with which we are surrounded would in the case supposed certainly become insufficient. The water alone would not keep off an enemy, if we had not a navy to ride on it; and we could not maintain a great navy without our foreign trade, which, with all the rest of Europe united under one head against us, certainly could not subsist.

The maintenance of the principle of the balance of power, however, although it has no doubt given occasion to some wars, has probably prevented more. Its general recognition has, to a certain extent, united all the states of Europe into one great confederacy, and habituated each of the leading powers to the expectation of a most formidable resistance in case of its making any attempt to encroach upon the rights of its neighbours. It is not sufficient objection to say that such attempts have been actually made. They would have been made much oftener had there been no such general understanding as we have spoken of. It must have operated as a great discouragement and check to the schemes of ambitious potentates to know that, from the first consolidation of the modern European system down to the partition of Poland in 1772—a period, we may say, of three centuries—not the smallest independent state had suffered extinction, or had been even very seriously curtailed of power or territory, notwithstanding all the wars for the purpose of conquest and aggrandizement that had been waged during that long interval.

BALANCE OF TRADE. In a tract published in 1677, called *England's Great Happiness*, which is quoted by Mr. M'Culloch in the introductory discourse to his edition of Smith's *Wealth of Nations*, is the following dialogue between 'Complaint' and 'Content':—

'*Complaint.* What think you of the French trade, which

draws away our money by wholesale? Mr Fortrey gives an account that they get 1,600,000*l.* a year from us.

"*Content.* It is a great sum; but perhaps were it put to a vote in a wise council whether for that reason the trade should be left off, it would go in the negative. I must confess I had rather they did use our goods than our money; but if not, I would not lose the getting of ten pounds because I can't get an hundred. . . . I'll suppose John a Nokes to be a butcher, Dick a Styles to be an exchange man, yourself a lawyer—will you buy no meat or ribands of your wife a fine Indian gown or fan because they will not *trade* with you for indentures which they have need of? I suppose no; but if you get money enough of others, you care not though you give it away in specie for these things. I think 'tis the same case."

The year after this sensible and conclusive passage was written, the French trade was prohibited for three years [illegible] and in the reign of William III. the legislature [illegible] the French trade a nuisance, and made the prohibition perpetual. This was to enforce what was called a favourable balance of trade. The notion we thus see [illegible] was not a mere theory, but a mischievous rule of practice, which even now some people regard with admiration, and would even [illegible] labour to make it a part of our commercial code. It would have the nation to be the lawyer who wants to *sell* his indentures with the wine merchant [illegible] the wine merchant will not buy the indentures [illegible] ought according to this to go without the wine, although he might *sell* the indentures to the exchange man, who would thus furnish him with the specie to buy the wine.

The balance of trade is understood by the [illegible] to be the difference between the [illegible] amount of a nation's exports and imports, in the dealings of any country with another. If the account shows that the imports (valued in money) exceed the exports (valued in money) the balance [illegible] to be against the nation; if the exports exceed the imports the balance is said to be in its favour. This mode of estimating the [illegible] evidently founded on the assumption that the precious metals constitute the wealth of a country; when the imports of any country as valued in money exceed its exports to the same, valued in money, the exporting country must [illegible] with some of its precious metals in payment, and, according to the doctrine, must so far be [illegible]. The nation has not the means of keeping very clear accounts of these matters, for it has an arbitrary standard of value called *official*, which has been in use [illegible] a century and a half, and which *official value* is an ingenious device for perplexing many otherwise simple questions, and for keeping up many absurd prejudices. Now taking the official or unreal values in connexion with the doctrine of the balance of trade, we find that during the year [illegible] the United Kingdom gained some thirty-four millions sterling by a favourable balance, for its imports, or the [illegible] received from foreigners, amounted to forty-five millions, whilst its exports, or the goods it sent to foreigners, amounted to seventy-nine millions. In 1832 the same sort of excess amounted to thirty-two millions, and in 1831 to twenty-two millions. If the favourable balance of these three years are anything but a fiction, it is manifest that the nation would in these three years only, have accumulated specie to the extent of the favourable balance, and this would amount to the sum of eighty-eight millions sterling. But further the same favourable balance has been going on for the last half century, or longer, and the result would be that all the specie in the world would at the present time be locked up in this island, and that the balance of thirty-four millions in 1833 would only be a small addition to the heap. Such a result is impossible, for bullion is as much a commodity for sale as corn, and is consequently as generally exchanged. [See BULLION.] But if this result were possible, and a nation resolving to sell only for specie, as the Chinese affect to do with regard to tea, could have the power of selling only for specie, this power of turning all its goods to gold, like the same power bestowed upon the wise king Midas, would confer the privilege of being without food and clothes and every worldly comfort upon the unhappy inhabitants of such a nation. The truth is, that no commerce is of any value to a country except as it gives the people of that country the power of consuming foreign productions which they either cannot produce at all at home, or which are produced cheaper and better abroad. It is the power of *exchanging* the surplus produce of one country for the surplus produce of another country which constitutes the ultimate object of all foreign commerce. The profit of the individual merchant is the moving force which impels the machinery of this commerce; but the end is that each country may consume what it would otherwise go without. In this point of view every country is a gainer by its foreign commerce; and if this gain could be estimated by figures, every country which exchanges its products with another country would have a favourable balance of trade. For both individuals and nations exchange that which they do not want for other things that they do want; and when both parties continue to carry on such exchange, it is clear that both are gainers. Which gains most is a question that cannot be settled, and would be of no use if it could be settled.

BALANINUS, in entomology, a genus of the order *Coleoptera* and family *Curculionidæ*. The [illegible] of this insect [illegible] remarkable impression [illegible] lengthened rostrum or snout, which is furnished at the tip with a minute pair of sharp horizontal jaws; this instrument is used by the animal in depositing its eggs, which are generally placed in the kernel of some fruit.



[illegible]

Balaninus nucum, or the nut weevil, deposits its eggs in both the common nut and the filbert, having bored a hole for that purpose while the nut is young and tender. When about to perform this operation, the little animal may be seen travelling over the nut and feeling with its antennæ to discover a convenient situation; in selecting which it shows great care; the spot being determined on, it cuts a hole with the jaws at the top of the snout until it reaches the kernel; in this hole the egg is deposited, which in a short time is hatched and becomes a maggot or *larva*. The nut being but slightly injured, continues to grow and ripen, while the larva feeds upon its kernel. In course of time, this larva gnaws a hole in the shell through which it makes its escape, and immediately burrows into the ground, where it assumes the pupa state, from which in the following summer, the perfect insect proceeds. The above figure represents a nut which has been pierced by the larva.

Balaninus glandium, another species of the same genus, attacks the acorn in the same manner as the one above mentioned does the nut.

BALANOPHO'REÆ, a natural order of parasitical plants belonging to that one of the five principal classes in the vegetable kingdom to which the name of *Rhizanthea* is applied. They grow upon the roots of woody plants in tropical countries, rooting into their wood, from which they

draw their nutriment, as the misletoe from the branches of the thorn. None of the species have fully formed leaves, but, in lieu of them, closely packed fleshy scales clothe their stems and guard their flowers in their infancy. Succulent in texture, dingy in colour, and often springing from a brown and shapeless rootstock, Balanophoreæ remind the observer of fungi more than of flowering plants, and, in fact, they appear intermediate in nature between the two. If they have flowers and sexes, both are of the simplest kind, and their ovules, instead of changing to seeds, like those of other flowering plants, become, according to Mr. Endlicher, bags of spores, like those of true flowerless plants. Even their woody system is of the most imperfect kind, for it is either entirely, or almost entirely, destitute of spiral vessels. It is probable that numerous genera and species of this singular order still remain undiscovered in the depths of tropical forests, where they lurk among the herbage and are not likely to attract the attention of the mere flower-gathering traveller. Up to the present time, only eight species have been discovered, arranged under the genera *Helosis*, *Cynomorium*, *Langsdorffia*, and *Balanophora*.

[Balanophora.]

[illegible]

BALANTIA, from βαλάντιον, a bag or pouch, the generic name which the German naturalist Illiger gave to the animals commonly called *Phalangers* (*Phalangista*); the latter name he reserves for the *Petaurists* (*Petaurus*) of other zoologists. [See PHALANGER and PETAURUS.]

BALANUS (Zoology), a genus of sessile cirripeds or barnacles, formed by Bruguières from some species of the genus *Lepas*, Linn. Sowerby has for reasons which appear to him conclusive re-united to *Balanus* those species which live in sponges, and which Leach had separated under the name of *Acasta*. *Balanus* offers a great variety of form; but the shell will be found to consist of six valves, four of which are comparatively large, coalescing at the sides, and forming altogether a rude hollow cone, whose aperture is closed by an operculum of four valves (between the two foremost of which issue the jointed feather-like *tentacula*), and its base by a testaceous plate.

The genus is most widely diffused, and abounds upon almost all bodies, whether fixed or moveable, that offer an opportunity for it to attach itself to them, and are immersed in the sea. On rocks left dry at low water, on ships, on timber, whether floating or at rest, on lobsters and other crustaceans, on the shells of conchifers and mollusks, colonies of *balani* are to be found.

a, Balanus Psittacus, about one-fourth of the natural size.
b, [illegible] natural size.

Balanus Psittacus (*Lepas Psittacus*, Molina) is thus described in the 10th number of the *Zoological Journal*, by Captain Philip Parker King, R.N., in his 'Description of the Cirripedia, Conchifera, and Mollusca, in a collection formed by the Officers of H.M.S. Adventure and Beagle, employed between the Years 1826 and 1830 in surveying the southern Coasts of South America, including the Straits of Magalhaens and the Coast of Tierra del Fuego.'

'This cirriped,' writes Captain King, 'which at Concepcion de Chile is frequently of a larger size than five inches and a half long and three inches and a half in diameter, forms a very common and highly esteemed food of the natives, by whom it is called *pico*, from the acuminated processes of the two posterior opercular valves. The anterior and posterior opercular valves, when in contact, present some resemblance to a parrot's beak, whence Molina's name. It is also found very abundantly at Valdivia and at Calbuco, near the north of the island of Chiloe. It occurs in large bunches, and presents somewhat of a cactus-like appearance. The parent is covered by its progeny, so that large branches are found composed of from fifty to a hundred distinct individuals, each of which becomes in its turn the foundation of another colony. One specimen, in the possession of my friend W. J. Broderip, Esq., consists of a numerous group based on two large individuals. They are collected by being chopped off with a hatchet. At Concepcion, where they are found of larger size than to the southward, they are principally procured at the island of Quiriquina, which lies across the entrance of the bay, whence they are exported in large quantities to Valparaiso and Santiago de Chile, where they are considered as a great delicacy, and indeed with some justice, for the flesh equals in richness and delicacy that of the crab, which, when boiled and eaten cold, it very much resembles.'

The spined and smooth varieties of *Balanus Montagui*, Sowerby, *Acasta Montagui*, Leach, afford examples of those species which live in sponges.





a, Balanus Montagui
b Variety without spines, and with a flat base.

Fossil *balani* have been found in the later deposits, and species are recorded from the beds at Piacenza, Bourdeaux, Paris, Essex, &c [See CIRRHIPEDA]

BALARUC, a village near the town of Frontignan, in the department of Herault, in France, celebrated for its warm baths It is near the border of the large pool (*étang*) of Thau; 43° 28′ N lat, 3° 41′ E long The baths are at some distance from the village there are three of them and the place is well frequented The waters are described as tonic (Malte Brun), and good for relaxation of the fibres, obstructions and pains, whether rheumatic or caused by wounds they are salt to the taste, but not so salt or so disagreeable as sea water The temperature is about 120 of Fahrenheit in summer, and 115 in winter In Malte Brun's *Geog* (last edition) the temperature is given at 48 of Reaumur, or 140 of Fahrenheit The spring from which the waters flow is below the level both of the pool and of the sea

These waters are taken from May till the end of September they are much recommended by the physicians of Montpellier, from which place Balaruc is about fifteen or sixteen miles distant to the S W It is doubtful whether the baths were known to the Romans

Opposite the baths of Balaruc in the midst of the pool of Thau, there is an isolated rock called Roc‑mils or Roquerol the base of which is commonly covered with muscles and other shell fish These the inhabitants detach from the rock by means of an iron ring attached to a long handle The chapel of Balaruc contains an inscription to the memory of Montgolfier, the aeronaut, who was buried here in 1810

We do not know the present population of Balaruc In the *Dictionnaire Universel de la France* (Paris, 1804) it is given at 404 (*Dict Géogr Méthodique* Reichard's *Description Road Book of France*)

BALAS RUBY, a term used by lapidaries to designate the rose red varieties of Spinel [See SPINEL] It should be carefully distinguished from oriental ruby (the sapphire) a gem of much greater rarity and value

BALASORE, a large town in the province of Orissa, in Hindustan, now in the possession of the Danes At an early period of the commercial intercourse of Europeans with India, the English, Dutch and Portuguese nations had also factories at Balasore, for the purpose of procuring the cloths of the surrounding district The different channel into which that trade has since come sufficiently accounts for the retirement of the British, and probably also for the declining condition of the town The buildings erected by Europeans have for the most part fallen into ruins and the houses which are habitable are meanly built In 1822 the town was estimated to contain 10 000 inhabitants The trade now carried on here is principally with the Maldives islanders, whose boats constructed of the trunks of cocoa-nut trees, arrive at Balasore in the months of June and July, during the south west monsoon Their import cargoes consist of coir, cocoa nut oil, and other products of the cocoa nut tree, which is their grand staple, cowries, tortoise shell, and salted fish These articles they exchange for rice, sugar, broad-cloths, stuffs of silk and cotton, hardwares, and cutlery; and with these they return home during the month of December, favoured by the north-east monsoon Some trade is likewise carried on in salt, which is made on the sea-shore a few miles from the town, by lixiviating the mud in the manner practised in the Sunderbunds of Bengal

Balasore is still the principal port of Cuttack, and is provided with dry docks, in which vessels drawing not more than fourteen feet water can be admitted at spring tides The town is situated in 21° 32′ N. lat, and 86° 56′ E. long and is 141 miles travelling distance from Calcutta

(Rennell's *Memoir of a Map of Hindustan*; Hamilton's *East India Gazetteer*; and *Reports of Committee of the House of Commons on the Affairs of India*)

BALASSA-GYARMUTH, the chief town of the Hungarian circle of Neograd, to the west of Szetseny, is situated on the Ipoly, in 48° 4′ N. lat., and 19° 18′ E. long., and in the centre of a rich expanse of corn-lands The vicinity produces much wine as well as grain and its annual fairs and manufactures are of considerable importance The inhabitants amount to about 1300, among whom are many Jews Close to the town are the ruins of a castle celebrated for its frequent and successful resistance to the attacks of the Turks It has a 'Comitats-Haus', where the principal authorities of the circle conduct its civil affairs, a Catholic, Lutheran, and Greek church, and a synagogue.

BA'LATON, LAKE, or the 'Platten See,' a lake situated in the south-western part of Hungary, and called by the native writers the 'Sea' or 'Mediterranean' of that kingdom Its length, in a line from south west to north-east, is estimated at 10 000 klafters (about forty-six miles), it is bordered by the circles of Veszprim, Szalá and Somogy or Sumeg in breadth it is extremely irregular for though it is not less than nine and a quarter miles near Tok it is not more than 1263 feet (under a quarter of a mile) near the peninsula of Tihany on the average, Csaplovics states the breadth to be about 3000 klafters, or three miles and a half Its geographical position, according to Weiland, is between 46° 45′ and 47 5′ N lat and 17 14′ and 18 10′ E long The depth of this lake is very variable but in general it may be set down as ranging from twenty seven to thirty six feet the latter being its depth near Tihany it occupies a surface according to Lichtenstein of about 110 square miles, to which may be added an extent of 129 738 yochs, or about 88,170 acres of swamps and marshes, on the side of Somogy in particular which its inundations render unfit for cultivation Such portion of its waters as are not briny are supposed in part to be derived from an underground communication with the Danube, at all events it is supplied with fresh water by the Szala which flows into it at its southern extremity as well as by nine springs which rise on its margin and thirty one rivulets and brooks independently of whatever quantities it receives from the sources which ascend from its bed The outlet of the lake is through the Sio near the town of Tok Its northern sides are encircled by hills and mountains some covered with woods and others with vineyards the surrounding country is full of limestone intermixed with red and yellow clay The waters of the Balaton are in a state of constant motion and not a day passes without their foaming and becoming so violently agitated as to drive in waves against its banks this occurs mostly in the evening and they have a gentle ebb and flow daily likewise, which some ascribe to the influence of the moon at least it has been observed that when the moon is nearest the full the springs which rise through its bed flow with peculiar rapidity These springs are supposed to bring much carbonic acid mixed with particles of iron from the limestone heights in the vicinity of the lake The water is beautifully clear and transparent excepting when it becomes boisterous or a storm is at hand and then they assume a sombre bluish hue which those who navigate its surface regard as a prognostic of the approaching weather We are also told by Csaplovics that so great an abundance of fish is found in the lake that the fishermen of Keszthely take at times from 150 to 200 cwt of them at a single draught There is one species, the Fogas (*Perca lucioperca*) which is found in no other spot it is commonly termed the 'tooth fish, or 'toothed mouth, from four tusk like teeth which protrude even when its mouth is shut in form it corresponds exactly with the pike, but in colour it is darker it frequently weighs between ten and fifteen, and sometimes twenty pounds, and its flesh which is of snowy whiteness, is delicious. Another kind of fish the 'whitefish or sword ling (*Cyprinus cultratus*), greatly resembles the herring, and they appear in the lake in such immense shoals during the winter season, that the fishermen haul from under the ice in a single day sufficient to load forty or fifty carts The 'goat's claw' is another remarkable production peculiar to lake Balaton, it is a small petrifaction, of the size and shape of half a goat's claw they are in fact nothing but mussels, rendered undistinguishable by the incrustation which has formed around them The lake indeed, is full of this shell fish in a natural state, and amongst them we find what is here called the 'breeding mussel' (*Helix vivipara*), which is about an inch and a half long, and which, instead of laying eggs like the rest of its kind brings forth its young alive, with the shell full formed neither is it hermaphrodite, as is the case with others of the species. When kept in a glass of pure water for a few days it will produce twenty or thirty young. Crabs, cray-

fish, otters, tortoises, &c., are also inhabitants of the lake. Iron sand is likewise one of its peculiarities; and "I am not aware," says Csaplovics, "though it is found near Messina in Sicily, the Canaries, and on the coast of Coromandel, that it exists in any other inland sea. Although full of particles of iron of peculiar brilliancy and purity, it does not corrode either in fresh or salt water, and it remains unaffected by heat. If the magnet be applied to it, about a fourth part of the sand will be taken up by it; and when examined with the microscope, it exhibits small grains of various precious stones, such as the garnet, ruby, amethyst, topaz, &c." There is an excellent spring of acidulous water near Füred, close upon the banks of the lake, which has become a place of great resort.

BALBEC. [See BAALBEC.]

BA'LBI, GA'SPARO, a Venetian merchant and traveller, who lived in the second part of the sixteenth century. He was a dealer in precious stones, and the business of his trade led him to Aleppo, whence he undertook a journey to India, which lasted several years. On his return to Venice he published an account of this journey, *Viaggio all' Indie Orientali*, 8vo, Venice, 1590, which was reprinted in 1600. Balbi's narrative is curious as it refers to an epoch when India was much less known than it is now, and was in a state very different from the present. The Portuguese were then the great, indeed the only, European nation trading to India, and their establishments on the coasts were numerous and strong. The Venetian merchants who ventured so far appear to have been on good terms with the Portuguese, and to have enjoyed security under their protection. Balbi wrote in an unpretending style, which bears marks of his candour as to what he himself saw, and also of his credulity with regard to matters which he knew only from hearsay. He is very minute and exact in every particular of mercantile information, but his statements are scanty with regard to the history and geography of the countries which he visited.

Balbi proceeded from Aleppo to Bir on the Euphrates, and then embarked on the river, which he represents as dangerous, owing to rapids and shallows. He landed on the left bank, at the distance of one day and a half from Bagdad, which he calls New Babylon, and to which city he proceeded by land. From Bagdad he descended the Tigris to Bussora, and there embarked for Ormuz, where the Portuguese had a fort, the sovereign of that barren little island being tributary to them. All provisions came from the coast of Persia. Balbi speaks of the pearl fishery which was carried on at Bahrein and other islands in the Persian Gulf. From Ormuz he proceeded to Diu, another factory of the Portuguese at the entrance of the Gulf of Cambay, and thence to Goa, their chief settlement on the Malabar coast. He gives a full account of the trade in those places, of the various goods brought to the markets, their prices in Venetian currency, the duties levied, &c. From Goa he went to Cochin, and thence round Cape Comorin to St. Thomas, or St. Thomé, as he calls it, another Portuguese factory. He gives a curious sketch of the missionaries, and their mode of converting the people at that time. He saw the king of Cochin and another Indian chief, who came to the house of the Jesuits at Cochin to settle amicably certain disputes with those fathers, who had sent numerous missionaries inland, and had converted so many of the people that one of the native kings was afraid of losing his crown. "The Jesuit fathers," says Balbi, "go about armed, and followed by great numbers of the converts: one of them in particular, a Genoese by birth, rides about the country, he and his men armed with muskets, and carrying before them a standard with the image of the Saviour, and converting multitudes of people, who follow him wherever he goes, which so terrifies the Pagans, that it is a wonder to see it." At St. Thomé Balbi embarked with several Portuguese merchants for the kingdom of Pegu, where he arrived in the year 1583. His account of that remote country is the most curious part of his narrative. Pegu was then a powerful kingdom; Ava was subject to it, and even Siam was its tributary. The ship in which Balbi was having arrived at Negrais, the goods and passengers were transferred into boats, in which they ascended the river Irawaddi for eleven days, at the end of which they arrived at Meccao, and proceeded by land to the capital of Pegu, which was twelve miles east from the river. Balbi represents the town as very large, divided into old and new: the new town was square, surrounded with walls and ditches. A number of large crocodiles were kept in the ditches to prevent any one from swimming over. The streets were wide, the houses built of wood, and dirty inside. The king's palace was in the middle of the new town: the old town was occupied by the trading people. The town of Pegu has been since destroyed by the Birmans, who conquered it about the middle of the eighteenth century, and left standing only the great temple of Shomadoo. Balbi had an audience of the king, who inquired about the traveller's native country, and being told it was a republic and had no king, he burst into such violent laughter at this novelty, that it brought on a fit of coughing to which he was subject. He appears, however, to have heard something of European politics, for he asked Balbi the name of the sovereign who had recently conquered Portugal (Philip II. of Spain). The king, according to Balbi's account, behaved very graciously to him, and made him a present of a golden cup and several pieces of China damask silk, to the great surprise of the natives. Balbi had brought from India some fine emeralds, which the king purchased at the price set on them by the brokers, and Balbi was paid partly in other precious stones and partly in *gansa*, or lead pieces, which were the currency of the country. The Italian traveller observes that he might have obtained double the price had he made a present to the brokers, "they being easily bribed." He gave a fine clock to the king's son, for which he was never paid. He asked leave to proceed to Ava, where the finest rubies were to be obtained, but was prevented by a war breaking out between Pegu and Ava. The latter kingdom had revolted; and the king of Pegu discovering that many of his own officers and governors had conspired against him, found means to entice them to the capital with their wives and children, and there burnt them alive to the number of 4000. The number is no doubt exaggerated, but Balbi states that he saw the poor wretches, and heard their shrieks. Of course he did not count them, and he is not very particular about his ciphers in these matters, for he talks of armies of a million, or at the least half a million of combatants. He however often qualifies his statements by saying "such was the common report." The war ended favourably for the king of Pegu, who killed the king of Ava, after which he returned to his capital in triumph. Balbi mentions the festivals and ceremonials of the court of Pegu, in which the white elephants of the king acted a conspicuous part. Upon the whole he gives a favourable account of the people of Pegu as being a mild, well-disposed race, and remarkably tolerant, as well as their talapoins, or monks, whose conduct seems to have been as exemplary as their doctrines were charitable. They did not prevent any of their countrymen from becoming Christians, and said that men could be good in any religion. Indian cotton stuffs were then the principal article of importation to Pegu, silver was exported to Bengal, and rice to Malacca, which was another Portuguese establishment. Balbi, after remaining two years in Pegu, set off for Martaban, and there embarked to return to Cochin. In this voyage he was in danger of being cast on the island of Carnicobar, the inhabitants of which he says were cannibals. The wind, however, turned favourable, and in seventeen days they saw the island of Ceylon, where the Portuguese had factories. At Cochin he was detained seven months before he could get a passage for Ormuz. He tells many curious particulars of the people of the Malabar coast, their superstitions, &c. He also heard there of the princes of Japan, who had just returned from Italy, where they had been on a visit to Pope Gregory XIII., and were going home, accompanied by a number of Capuchins and other friars. A Chinese vessel, which arrived at Cochin, brought the news of the great progress which Christianity was making in China, where a Neapolitan Jesuit, having learned the language, preached with the emperor's permission. Balbi returned home by the way of Ormuz, Bussora, Bagdad, and Aleppo. He had left Aleppo in 1579, and returned in 1588.

Balbi seems to have been the first traveller who gave an account of Transgangetic India. Olearius, in his edition of Mandelslo's travels, gives an abridgment of Balbi's journey, as Mandelslo himself, who travelled in the East Indies about half a century later than Balbi, did not visit Pegu. A Latin translation of Balbi's narrative is in De Bry's *Collection of Voyages and Travels to the East Indies*, Frankfort, 1590-64. Prevost, in his *Histoire Générale des Voyages*, gives an account of Pegu from Shelden, a later traveller, in which he quotes Balbi.

BALBI'NUS, DE'CIMUS CA'ELIUS, a Roman sena-

tor, after being twice consul, was elected emperor by the senate in opposition to the usurper Maximinus, who was supported by the legions in Germany. The two Gordians, father and son, who had been proclaimed shortly before in Africa with the approbation of the senate, were overpowered and killed by the soldiers of Capellianus, the governor of Mauritania, who had taken the part of Maximinus. [See GORDIANUS.] Maximinus himself, hearing that the senate had outlawed him, was preparing to march from Illyricum into Italy. Rome was in great consternation. The senate in this emergency elected two emperors—Clodius Pupienus Maximus, an experienced officer who had risen from a low station to the highest ranks, and Balbinus, a man of fortune and connexions, and of a mild conciliatory character. As the two emperors elect were proceeding to the Capitol to offer sacrifice to the gods, the people and the soldiers stopped the way, demanding an emperor from the family of the Gordians, who were popular favourites. A boy twelve years of age, the son of a daughter of the elder Gordianus, being found, was saluted Cæsar, by the name of Marcus Antonius Gordianus, afterwards known in history as the Third Gordianus. After the tumult was thus appeased and the customary games in the Circus were given for the amusement of the Roman people, Maximus set off for North Italy to oppose Maximinus, and Balbinus remained at Rome. A [illegible] tumult broke out shortly after in the city [illegible] two prætorian soldiers [illegible] the [illegible] house to listen to the discussions [illegible] by some of the senators [illegible] of Maximinus. The prætorian [illegible] death of their comrades [illegible] [illegible] [illegible]

[illegible]

[illegible] the senate. Provocations on the part of the [illegible] exasperated their feelings. A body of German [illegible] Maximus had led back to Rome and [illegible] trusted, added to the jealousy of the prætorians. A [illegible] understanding also appears at the same time to have [illegible] unfortunately existed between the two emperors. Balbinus was jealous of the military reputation of [illegible] While most of the citizens had gone to witness the celebration of the Capitoline games, the prætorians sallied out to attack the palace of the emperors. Maximus, being informed of this, sent for his trusty Germans, but Balbinus, through some suspicion of the designs of Maximus, opposed the order, in consequence of which the prætorians had time to force the entrance of the palace, when rushing into the apartments, they seized both emperors, whom they dragged ignominiously towards their camp, insulting and tormenting them by the way. Hearing that the Germans were coming at last, they killed their two prisoners and left the bodies in the street. They then took the boy Gordianus to their camp and proclaimed him emperor. The people likewise acknowledged him, and the senate was obliged to do the same, A.D. 238. The two murdered emperors were no more talked of, and no punishment was inflicted on the assassins. Balbinus and Maximus reigned little more than one year, during which time they had shown assiduity in their duties, attention to justice and public security, and respect for the authority of the laws. They were, at the time of their death, making preparations for carrying on the war against the Persians, and also against the Sarmatians and Scythians. They were both regretted in private, Maximus for his firmness tempered by moderation, and Balbinus for his affability and his elegant manners and taste. Balbinus was fond of luxury and refinement, and was also a lover of literature; he appears to have been a poet of no mean reputation in his time. His house, inhabited by his posterity, was still existing in the time of Diocletian. (Julius Capitolinus, *Historia Augusta*.) Maximus had foreseen his fate, and [illegible] told Balbinus, at the time of their election, that the hatred of the soldiers would prove fatal to them both. The account of the transactions of the reign [of t]hese two emperors affords a striking picture of the social and political condition of Rome in the age which followed that of the Antonines. In the century which elapsed between the death of Commodus and the accession of Diocletian, no less than thirty emperors, besides pretenders, followed each other in rapid succession, and of all these only two died a natural death. (Herodianus, vii. viii.; Crevier, *Histoire des Empereurs Romains*.)

[illegible]

BALBOA, VASCO NUÑEZ DE, was born in Jerez [illegible] about the year 1475. [illegible] to the class of hidalgos (or [illegible] circumstances. Vasco [illegible] in the house of Don Pedro [illegible] In 1501 he accompanied [illegible] in his voyage of discovery to the new [illegible] Cadiz in October in two vessels. [illegible] whether Balboa remained with Bas[tidas illegible] to the death of the latter, or [illegible] to settle in Española (St. Domingo [illegible] 1510 [illegible] at S[illegible] one of the [illegible] having bettered his [illegible] debt. About that time Alonso de Ojeda [illegible] projected a voyage of discovery [illegible] granted them the privilege of colo[nizing illegible] which they might [illegible] de la Vela in 12° N. lat. and [illegible] 5° N. lat. and [illegible] of territory allotted to Ojeda [illegible] of the gulf of Uraba (or Darien [illegible] from that point to Cape [illegible] Both chiefs set sail almost at the same [illegible] landed near the site of Cartagena [illegible] several losses from the natives he was [illegible] and proceeded to the gulf of Darien, [illegible] forming a settlement on the east[illegible] side of the gulf. With great difficulty he built a few houses, to which he gave the name of San Sebastian. [illegible] Bachiller Enciso, a lawyer who belonged to the expedition, and who had remained at Española to load two ships with men and provisions, Ojeda at last determined to sail in quest of him. Entrusting the command of the settlement to Francisco Pizarro he proceeded to Española, where he died in extreme poverty. His men, after waiting some time in vain for their leader, embarked in two brigs, and sailed for Cartagena. On entering the port they discovered the vessels of Enciso. The governor of Española had made a law in that island, that no one should quit it before he had paid all his creditors. Balboa, who was in debt, and was anxious to get away from the island, hid himself in a cask in Enciso's ship, and when the vessel was far from land presented himself to Enciso, who, though much irritated at the trick, was at last reconciled by the entreaties of Balboa and his friends.

Enciso, on learning the absence of Ojeda, claimed the chief command, and his men, after some resistance, submitted. He ordered them to proceed to the gulf of Darien; on entering which a violent storm overtook them, and after struggling with the elements for a long time, the vessel of Enciso was violently driven against a rock on the coast,

and the men, 150 in number, saved themselves by swimming. The settlement they found reduced to ashes. They next attempted to penetrate the country, but met with such resistance from the natives that they were obliged to retire to the coast. In this state of despair Balboa said, 'I remember to have seen, when I was on these coasts some years ago, a town situated by the side of a large river on the west side of the gulf: the inhabitants were of a mild character, and did not use poisoned arrows.' The suggestion of Balboa was no sooner made than it was eagerly embraced by all. He led them towards the place; and the event proved the correctness of his information. After a very obstinate combat with the Indians, the Spaniards put them to flight, entered the town, and founded a settlement, which they called, in fulfilment of a vow, Santa Maria de la Antigua del Darien, in 8° 20′ N. lat. The Spaniards, after their establishment there, began to exchange with the natives goods and trinkets for gold, and had already received to the amount of 12,000 dollars, when Enciso, under pain of death, forbade the exchange of anything for gold. On this his men deposed him, and some of them elected Balboa and Zamudio for their leaders. But there was a party still faithful to Enciso, and others, again, were desirous to place themselves under Nicuesa. In the midst of these disputes a ship arrived from Spain with men and provisions for Nicuesa. The captain distributed part of his stores among the settlers, and this circumstance determined the parties in favour of Nicuesa. They accordingly despatched the vessel in quest of that chief, and found him near Portobello in great distress. Nicuesa, indignant at the state of insubordination in the colony, sailed towards the settlement, but he was not allowed to land. After intreating permission, which was refused him, he came on shore secretly in spite of the advice of Balboa. Here he was seized by order of his adversaries, and placed in a miserable vessel with seventeen men who chose to follow him. The vessel sailed for Spain, and it is supposed to have been lost at sea.

The parties of Enciso and Balboa now resumed their dispute, and Balboa gained the victory. Enciso was placed under arrest, tried, and condemned to imprisonment and the loss of all his property, for having usurped the command of Ojeda. By the entreaties of friends Balboa granted him his liberty, on condition of his leaving Darien. Balboa now sent Zamudio to Spain to give an account of what had taken place, and having sent for the men whom Nicuesa had left at Portobello, he made a successful expedition into the country. On that occasion Balboa became acquainted with a very powerful cacique, who gave him much useful information about his own country, and also about a very powerful and rich state, which, as he said, was six suns, or days, to the south of his own country. This was the first information the Spaniards had of Perú. Balboa and his men returned to Darien, where he found a reinforcement, which Columbus had sent from Española. The provisions brought by that vessel were soon consumed, and they had, besides, the misfortune of losing their harvest through a destructive storm and inundation. Upon this Balboa sent a certain Valdibia to Columbus, giving an account of the country discovered, and requesting a fresh supply of provisions and 1000 men, that he might be able to remain in the country without being obliged to destroy the natives, and also to undertake the conquest of the country of which he had received intelligence.

In the beginning of September, 1513, Balboa embarked some of his men in one brig and some canoes, and sailed direct to Coiba, an island near the coast of Veragua, where he left the vessels, and proceeded into the interior. By his prudent policy he won several tribes of Indians, and after a painful journey of about a month, he arrived on the 29th of September at a mountain, from the summit of which the immense expanse of the Pacific Ocean burst upon his view. Affected at the sight, and falling upon his knees, he thanked the Almighty for having granted him the favour of discovering those immense regions, and then addressing his companions, he said, 'Behold, my brothers, the object of all our desires, and the reward of all our toils: behold before your eyes the sea which was announced to us, and undoubtedly its shores contain the riches which were promised to us. You are the first who have visited these shores; yours alone is the glory of reducing these regions under the dominion of our king, and of leading its inhabitants to the knowledge of the true religion. Be faithful and obedient as you have hitherto been, and I promise you that none shall equal you, either in glory or riches.' His companions all embraced him, and promised to be faithful to the last moment. He then cut down a large tree, and depriving it of its branches, erected a cross upon a heap of stones, and wrote the names of Fernando and Isabel on the trunks of several trees round about. Descending with his companions to the sea-shore, Balboa, in full armour, having in one hand his sword and the standard of Castile in the other, stood upon the sand until, the tide ascending, the water reached his knees. He then said in a loud voice, 'Long live the high and powerful king and queen of Castile. In their names I take possession of these seas and regions; and if any other prince, either Christian or Pagan, should pretend to have any claim or right to them, I am ready to oppose him, and to defend the right of their lawful possessors.' A notary then registered this act, by which the Spaniards considered themselves to be the lawful possessors of all that country. To that part of the sea they gave the name of Golfo de San Miguel, on account of its having been discovered on Michaelmas day.

Balboa, after visiting some of the islands in the gulf, returned to Darien. The fatigues of the journey brought upon Balboa a very dangerous fever, which obliged him to be carried part of the way on a hammock to the settlement, where he arrived on the 19th of January, 1514. So prudent and conciliating had been the conduct of Balboa towards the natives, that having left a few of his men, who were unable to follow him, in an Indian village, on his march to the Pacific, the chief of the tribe went out to meet him on his return, and presenting to him his soldiers, said, 'Receive, brave man, thy companions uninjured, as they entered under my roof, and may He who gives us the fruits of the earth, and causes the thunder and lightning, preserve you and them.'

On arriving at Darien, Balboa gave those who had remained in the colony their proportionate share of the riches acquired in the expedition; he also sent a messenger to Spain, to give an account of his discovery, and devoted himself entirely to the improvement of the settlement. In the mean time Enciso, by the reports which he had spread at court of the misfortune of Nicuesa, and the bad state of affairs in Darien, had so excited the feelings of the king against Balboa, that Zamudio, who attempted to exculpate his friend, was ordered to be imprisoned, and was obliged to conceal himself. The government determined to appoint a person to supersede Balboa, and to try him for his rebellion. That commission was given to Pedrarias Dávila, a nobleman. The squadron of Pedrarias, consisting of 1500 men, arrived at Darien in 1514. Such were the reports of his ambition which the enemies of Balboa had spread in Spain, that Pedrarias expected to find him living in the colony in princely state, but on his landing he was astonished to find him dressed like the meanest of his men, directing and assisting some Indians in roofing a house.

Pedrarias communicated to Balboa the orders which he had received from the government to enquire into his conduct towards Enciso and also respecting the death of Nicuesa, which his enemies attributed to him. Balboa was placed under arrest and tried. He was acquitted of the latter charge, but condemned in a heavy fine as damages to Enciso, on paying which he was set at liberty. Pedrarias, however, kept him without any employment in the colony, the consequence of which was, that, through ignorance of the country and mismanagement, the settlers were reduced to such a state of misery, that in the space of one month seven hundred men died of sickness and hunger. The new adventurers, expecting to find gold in abundance everywhere, ranged about the country in search of it, and not finding the object of their wishes, treated the poor Indians with great cruelty. In all their excursions into the interior they were repelled with loss by the natives. Even those caciques who from the beginning had been friends and allies of the Spaniards were, through ill-treatment, changed into their enemies.

In the meantime, the friends of Balboa at home had so exerted themselve in his favour, that they obtained for him, in 1515, the appointment of governor of Darien and Coiba, under Pedrarias. Balboa had informed the government of Pedrarias's mismanagement; his letter is dated October 16th, 1515 (see Navarrete, vol. iii.), but the appointment of Balboa was not in consequence of that letter, for it arrived at Madrid after. Pedrarias was unwilling to give Balboa his authority, at which the latter, highly displeased, sent his

friend Garabito secretly to Cuba, to procure sixty men, with the view of making a settlement near the Pacific. When Garabito returned, Pedrarias had given to Balboa his rank and title. Garabito landed his men about twenty miles from Darien, and informed Balboa. The information, secret as it was, reached the ears of Pedrarias, at which he was so indignant, that he ordered Balboa to be imprisoned; but on the entreaties of the Bishop Quevedo, and his own wife, Balboa was released and reconciled to his enemy. This reconciliation was further cemented by the marriage of Balboa with the eldest daughter of Pedrarias, then in Spain. Notwithstanding this apparent reconciliation, Pedrarias kept Balboa at Darien, and was always afraid of employing him. In 1517, Pedrarias having been unsuccessful in all his attempts to reduce the country, sent Balboa in the direction of Port Careta with orders to found a colony there, and to build ships, in order to visit some of the islands in the Pacific. Balboa established his colony at Acla, taking an active part himself in the labour that was required, both in the field and in the town. With his men he cut down wood, and built four brigs; but unfortunately the timber was so bad that they proved unfit for service. This disappointment by no means deterred Balboa. He found better timber, built two brigs, and taking in them as many men as he could carry, he sailed into the gulf, and landed on one of the islands. Here having learned that Lope de Sosa had been appointed by the government to supersede Pedrarias, he sent one of his captains to Darien, to procure positive information, and to provide him with such articles as were requisite for building ships. 'Go,' said he to Garabito the captain, 'and if Pedrarias is still governor, he will supply us with all we may want, and by the favour of God we will immediately sail for our destination.' It is said that a soldier, who, as Balboa uttered the last words of his message, overheard him, went and informed Pedrarias that Balboa intended to go on a voyage of discovery on his own account. Others say that Garabito, having fallen in love with an Indian woman kept by Balboa, had determined to work his ruin, to effect which he gave the same information to Pedrarias. However this may be, Pedrarias, immediately after the arrival of Garabito at Santa Maria, ordered Balboa to return to Acla. Before he arrived at that place he was informed by some friends that Pedrarias had determined to effect his ruin, but Balboa, trusting to his innocence, went on till he met Francisco Pizarro with an armed force, who delivered to him the order of arrest from Pedrarias. When Balboa received this intelligence he said to Pizarro in a friendly tone, 'Was this the way in which you were accustomed to meet me?' Having arrived at Acla he was thrown into prison, and tried on the very charges on which he had before been acquitted. Although the judge found him guilty, he recommended him to mercy in consideration of his services, but the inflexible Pedrarias answered the judge, 'If he is a criminal, let him die for his crimes.' He was accordingly condemned to be beheaded.

When Balboa was taken to the place of execution and the public crier proclaimed that he was condemned as a traitor and usurper of the dominions of the king, he said with a firm voice, 'That is a gross falsehood; as sure as my last moments are near at hand, I never had even a thought except of the most loyal and faithful devotion to my king, nor had any other desire than to increase his dominions with all my power and ability.' Balboa died with the firmness of a hero, in his forty-second year. Herrera says that Balboa was a tall and graceful man, of a pleasing countenance, with flaxen hair, and that he had an acute understanding, and was possessed of great fortitude. In danger and fatigue he always took the lead, and was the last in enjoying rest and comfort. 'He was,' says Quintana, 'rigid in his discipline, but when his soldiers were sick or wounded, he visited and consoled them as a brother, and he was on many occasions seen to go in pursuit of game, and even to dress it himself, for his sick men.'

(See Herrera, *Historia General de las Indias Occidentales*, Decada first and second; Quintana, *Vidas de Españoles Ilustres*, tom. ii.; Navarrete, *Coleccion de los Viages y Descubrimientos de los Españoles desde fines del Siglo XV*, vol. iii. Madrid, 1829.)

BALCASH, THE LAKE OF, called also **BALKASH** and **BHALKHASH-NOR**, is the largest of the numerous lakes which exist on the lowest terrace by which the high table-lands of central Asia descend toward the north-west. It lies between 43° and 45° N. lat., and 72° and 75° E. long., in the country of the Zungaries, or, according to the present political division, in that province of the Chinese empire which is called Thian shan Pelu (Northern Thianshan) or the government of Ili.

The extent of this lake is not known. On the most modern maps it occupies from north to south, about 1½ degree of latitude, which would give for its length about 120 miles, and this is probably not too much, as the caravans going from the banks of the Irtish to Tashkend and Khashghar travel for many days together on its shores. Its average breadth seems to be considerably less.

It would be very interesting to know its elevation above the level of the sea, as it is placed nearly in a straight line between the lake of Zaizang, which according to Humboldt, is more than 1600 feet above the sea, and the lake of Aral and the northern part of the Caspian Sea, of which the former is 251 and the latter 378 feet below the sea-level.

On the east and on the west the lake is enclosed by mountains which terminate not far from its shores. Those on the east separate it from the lake of Alak-kul, and those on the west and south-west from that of Issi-kul: both ranges are called Ala-tau, though they are divided from one another by the lake and the wide valley of the Ili river. On the north and north-west of it extends a steppe many hundred miles in length, which from the nation that inhabits it is called the Steppe of the Kirghis Kasaks, and continues to the northern parts of the lake of Aral and the Caspian Sea. It seems to descend by a very gentle slope to the west, as the course of all its rivers proves. On the south and south-east of the lake opens the wide and extensive valley of the Ili, which, less than eighty years ago, was the principal seat of the independent and powerful Zungars, from whom this country was called Zungaria. Their empire was destroyed and the whole nation nearly annihilated by the Chinese, who, since that time, have settled other nations there, Turks, Mongols, Mandshus, and Chinese, and have introduced agriculture. The hordes of the Turgut, who in 1771 left the banks of the Volga and the Russian empire, likewise received from the Chinese the countries to the south of the lake of Balcash. The river Ili, which traverses this valley in all its length, has according to the Chinese geography a course of upwards of 310 miles: it empties itself into the southern extremity of the lake, which has no outlet, though it receives, besides the Ili, the water of several other rivers on the north and east, of which one or two run perhaps a hundred miles and upwards. (Humboldt; Ritter's *Asia*.)

BALCONY is derived from the Italian word *balco*, or *palco* (*Dizionario della Crusca*). Balcone is often used by Boccaccio in his *Novelle*, from which circumstance we may conclude that balconies were very common in Italy at that time. Palco signifies in Italian the box of a theatre; and in the great theatre at Bologna, built we believe by Palladio, each box or balcony has a balustrade. [See BALUSTRADE.] The balcony is much employed in edifices of modern date. The object of balconies is to give the inhabitants of a house a better view. They are formed nearly on a level with the floors of rooms, and supported on cantilevers or brackets, and sometimes, though more rarely, on columns of wood or stone. The floor of the balcony is laid on the cantilevers, and the sides are inclosed with a railing of iron or a balustrade of stone. Where balconies are formed the windows are for the most part made to open down to the ground. In London cast-iron railing, variously designed, is most commonly used. There are, however, balconies with balusters of stone, sometimes placed before single windows, or continuous ranges of them. The Goldsmiths' Hall, at the back of the Post-office, is an example of the former; the balustrade inclosing the space above the columns of the Quadrant at the end of Regent street in London, and the Crescent at the end of Portland place, are examples of the latter. Some balconies have a very slight projection, and rest not upon cantilevers, but upon the basement wall, as in the Banqueting-house at Whitehall. [See BASEMENT.]

Since the introduction of Grecian architecture some balconies have been inclosed with small Greek columns instead of the baluster used by the Italian architects. In Venice there are very magnificent balconies in the Gothic taste, remarkable for their richness. It is uncertain when balconies were first introduced into England. Some of the old inns, with the galleries round them, are perhaps the oldest examples existing. Elizabethan architecture shows

some very elaborately designed balconies: but perhaps the nearest example to the *palco* of the Italians will be found in some of the colleges of Oxford. Magdalen College contains an example of such a balcony in a pulpit supported on corbels. [See CORBEL.] (Mackenzie and Pugin, *Specimens of Gothic Architecture*.)

BALD BUZZARD (Zoology), one of the English names for the *Osprey* or *Fishing Eagle*, the *Fishing Hawk* and *Fish Hawk* of the Americans, *Aquila Pescatrice* of the Italians; *Haliætus* and *Morphnos* of Aldrovandus, *Balbusardus Anglorum* of Ray, and *Falco Haliætus* of Linnæus, forming the typical if not the only species of the subgenus *Pandion* (Savigny), for Cuvier limits the subgenus to this species, but Lesson thinks that the *Joh. ...* (*Falco Ichthyætus* of Horsfield) should be added.

The *Bald Buzzard, Pandion haliætus*, appears to be



[Pandion haliætus.]

widely diffused. Temminck observes, that it is generally distributed through Europe, and that it abounds in Russia, Germany, and Switzerland. It is also found in Egypt. In the British islands it seems to be comparatively rare. Willughby records one that was shot at Penzance with a mullet in its claws; and White mentions another that was shot at Frinsham Pond, near Selborne, while it was sitting on the handle of a plough and devouring a fish. 'It used,' says White, 'to precipitate itself into the water and take its prey by surprise.'

It has been seen at Killarney in Ireland, and Montagu speaks of its frequent occurrence in Devonshire. Selby says, 'I have seen them upon Loch Lomond, where they are said to breed; but they are far from being numerous in Scotland.' Montagu corroborates this, for he says, in his *Ornithological Dictionary*, 'It is said to make its nest generally on the ground by the side of water, composed of flags and rushes; but we once saw the nest of this bird on the top of a chimney of a ruin in an island on Loch Lomond in Scotland: it was large and flat, formed of sticks laid across, and resting on the sides of the chimney, lined with flags.'

That it is found near Rome is evident from Bonaparte's *Specchio Comparativo delle Ornitologie di Roma e di Filadelfia*.

In America it is said to be found in the summer from Labrador to Florida; and it is even stated to have been seen in Cayenne: indeed Latham gives it the name of *Cayenne osprey*. But it is in the more temperate climate of the New Continent that the bird abounds, and there its coming is eagerly watched by the fishermen as the harbinger of the shoals of fish that approach the shores in the spring. 'Towards the close of March,' writes Nuttall in his interesting *Manual*, 'or beginning of April, they arrive in the vicinity of Boston with the first shoal of alewives or herrings, but yet are seldom known to breed along the coasts of Massachusetts.' The same author attributes their departure from New York and New Jersey, as early as the close of September, or at farthest the middle of October, when they migrate farther south, to the going of the fish on which they are accustomed to feed; for they principally live on fish, which they take by dashing from on high into the water with such violence, that, as Pennant observes, the Italians have applied to the bird the epithet *piombina*.

But the bald buzzard is haunted by a persecutor that often snatches from it the hard earned prey. Catesby and others describe its sufferings from the piracy of the white headed sea eagle, *Haliætus leucocephalus*, and Wilson gives the following vivid description of such a scene,—a description which those only who have devoted themselves to watching the habits of animals can give. 'Elevated,' says that admirable ornithologist, speaking of the white-headed eagle, as he saw him in America, 'on the high dead limb of some gigantic tree that commands a wide view of the ocean, he seems calmly to contemplate the motions of the various feathered tribes that pursue their busy avocations below, the snow white gulls slowly winnowing the air; the busy tringæ coursing along the sands; trains of ducks streaming over the surface; silent and watchful cranes, intent and wading; clamorous crows, and all the winged multitude that subsist by the bounty of this vast liquid magazine of nature. High over all these hovers one whose action instantly arrests his attention. By his wide curvature of wing and sudden suspension in the air, he knows him to be the fish hawk settling over some devoted victim of the deep. His eye kindles at the sight, and balancing himself with half opened wings on the branch, he watches the result. Down, rapid as an arrow from heaven, descends the distant object of his attention, the roar of its wings reaching the ear as it disappears in the deep, making the surges foam around. At this moment the eager looks of the eagle are all ardour; and levelling his neck for flight, he sees the fish hawk once more emerge struggling with his prey, and mounting in the air with screams of exultation. These are the signal for our hero, who, launching into the air, instantly gives chase, and soon gains on the fish hawk. Each exerts his utmost to mount above the other, displaying in these rencontres the most elegant and sublime aerial evolutions. The unencumbered eagle rapidly advances, and is just on the point of reaching his opponent, when with a sudden scream, probably of despair and honest execration, the latter drops his fish; the eagle, poising himself for a moment, as if to take a more certain aim, descends like a whirlwind, snatches it in his grasp ere it reaches the water, and bears his ill gotten booty silently away to the woods.'

The bald buzzard is a powerful bird, and the females, which are the larger (as indeed they are among most of the birds of prey), sometimes weigh five pounds. The plumage, which is very like that of the water fowl, and adapted to resisting the fluid into which it plunges for its prey, is white below, with a few brown streaks and speckles on the throat. There is, indeed, a patch of brown on the upper part of the breast in young birds. The crown of the head is light brown, edged with white; and there is a streak of dark brown from the eye to the shoulders. The whole of the upper part of the body is brown. The feathers on the thighs are close, and the legs short, stout, and greyish; and in this part of its organization we see a beautiful instance of adaptation to its habits. The close thigh feathers resist the action of the water, while the talon of the outer toe is much longer than the inner one, and capable of being turned backwards, the under surfaces of all the toes are also very rough and covered with protuberances, which enable it to secure its slippery prey. The irides are of a lemon colour.

The bald buzzard, or osprey, lays from two to four eggs, a little larger than those of the common fowl, of a reddish, or yellowish cream-colour, marked with blotches and dots of reddish brown. During incubation the male often feeds the female. Nuttall, in his *Manual*, gives the following account of their habits in the breeding season:—

'Unlike other rapacious birds, the ospreys may be almost considered gregarious, breeding so near each other, that, according to Mr. Gardiner, there were on the small island on which he resided, near to the eastern extremity of Long Island, New York, no less than 300 nests with young. Wilson observed twenty of their nests within half a mile. I have seen them nearly as thick about Rehoboth Bay, in Delaware. Here they live together at least as peaceably as rooks; and so harmless are they considered by other birds, that, according to Wilson, the crow-blackbirds, or

grakles, are sometimes allowed refuge by the ospreys, and construct their nests in the very interstices of their eyry. It would appear sometimes, that, as with swallows, a general assistance is given in the constructing of a new nest; for, previous to this event, a flock have been seen to assemble in the same tree squealing, as is their custom, when anything materially agitates them.'

BA'LDACHIN (*baldachino*, Italian), a kind of canopy, either supported on columns, or suspended from and used to cover an altar in a Catholic church. The word is derived from the Italian *baldachino*, signifying a piece of furniture which is carried or which is fixed, over sacred things or over the seats of princes and persons of great distinction, as a mark of honour. The form, for the most part, is square, and the top covered with cloth with a hanging fringe; sometimes the fringe is formed of pieces of cloth cut out after the fashion of a banner. The baldachin has been supposed to have been derived from the antient *ciborium* (κιβώριον, a large cup or vase). An isolated building placed by the early Christians over tombs and altars, was called a ciborium. The modern baldachin is of the same form as the ciborium erected by Justinian in the church of Santa Sophia at Constantinople, which was made of silver, gold, and precious stones, and supported by four silver-gilt columns. The baldachin is however deprived of the curtain which in the ciborium were intended to inclose whatever was deemed sacred within. (*Encycl. Méthodique.*) The Mohammedans seem to have copied the ciborium in their tombs. (See the domed tombs at Cairo in the work of the French Institut on *Egypt.*) The baldachin carried over the host in Catholic countries is not unfrequently of an umbrella shape; a similar sort of umbrella may be seen on an Etruscan vase. (See Millin's work on *Vases.*)

The baldachin in St. Peter's at Rome, made by Bernini, is the most celebrated, and is the largest known work of the kind in bronze. The dome or covering is supported on four large twisted columns of the composite order placed upon pedestals of black marble, the dies of which are ornamented with bronze escutcheons. The columns are fluted for a third their height; the remaining part is ornamented with boys and leaves of laurel combined something after the manner of the columns of the temple designed by Raphael in one of his cartoons. The whole work is beautifully executed and highly finished. Above the columns are four figures of angels standing upright; at the top of the covering there is a cross, and below the entablature the banner-like cloth fringe of the portable baldachin has been imitated. The plan is square, and the altar stands between the two pedestals of the foremost columns. The height is 126 ft. 3 in. from the floor of the church to the summit of the cross, of which the pedestal is 11 ft. 8 in., the columns 50 ft. 1 in., the entablature 11 ft. 6 in., the covering 40 ft., and the cross is 12 ft. 9 in. There were 186,392 lbs. of bronze employed on this work, the chasing alone cost more than 100,000 crowns. The Pantheon was despoiled of its fine bronze ornaments to form this baldachin, and there being more ornaments than were necessary, the remainder were afterwards cast into cannon.

The baldachin of Santa Maria Maggiore, the next in importance to that of St. Peter's, is a kind of crown supported by four figures standing on columns of porphyry ornamented with bands of bronze. It was made by the Cavaliere Fuga. It is not improbable that the Gothic canopies (see GOTHIC ARCHITECTURE and CANOPY), over figures of saints and personages of distinction, were intended for baldachins, as they appear to be used as marks of distinction, and not for a covering only to protect them from the weather, as they are placed horizontally on the tombs of kings and queens, and other personages of high rank, *e.g.* the tombs of the kings in Westminster Abbey). (Stothard's *Monumental Remains;* and Blore's *Monumental Remains of Great Britain.*)

BA'LDI, BERNARDI'NO, was born at Urbino in 1553, of a noble family. After having received his early education in his native town he went to Padua, where he studied mathematics, jurisprudence, and the languages, of which last his biographer Affò says he acquired fourteen. His reputation in these branches of learning made him known to Ferrante Gonzaga, Lord of Guastalla, who engaged him as a teacher of mathematics. The prince was so pleased with Baldi's manners and abilities that he made him Abbot of Guastalla, with the pope's approbation. Baldi discharged the duties of his new office with great assiduity and zeal, but in defending the prerogatives, jurisdiction, and immunities of his abbey, he found himself entangled in disputes with the community and lay authorities of Guastalla, and with the prince himself. Annoyed, perhaps, at these controversies, he absented himself, and repaired to Rome, where Cardinal Cintio Aldobrandini, nephew of Pope Clement VIII., became his friend, and invited him to live in his house. Baldi resigned the abbacy of Guastalla, retaining an annual pension from its income. Having left Rome, he returned to Urbino, where the Duke Francesco Maria della Rovere sent him, in 1612, as his envoy to Venice, to congratulate the new Doge Andrea Memmo. On this occasion Baldi pronounced an elegant oration before the Venetian senate, which so pleased the doge that he presented the orator with a massive gold chain of considerable value. Baldi wrote a vast number of works in prose and verse, the greater part of which have remained inedited. Among those published are a poem on navigation and several eclogues, which are not without merit. He painted the Italian rustics not as imaginary Arcadian beings, such as those of Guarino, Fontenelle, and Gesner, but as rustics really are, describing their habits and employments, and deriving a moral from their contentedness and their humble enjoyments. Baldi wrote also a poem called *Deifobe*, purporting to be a chronicle of the vicissitudes of Rome from its foundation to the epoch in which he lived, in the form of a prophecy which he puts into the mouth of the Sibyl of Cumæ, after the manner of the Cassandra of Lycophron. Of Baldi's prose works we have several dialogues, one on dignity, in which he gives a definition of the meaning of honour, which is remarkable for its philosophical justness; and another on the qualities and duties required of a prince, written with considerable freedom, considering the age and country in which he lived. He also compiled a short chronicle of all the mathematicians known from Euphorbius (mentioned by Diogenes Laertius in his *Life of Thales*) down to his own time. This was but the outline of an extensive series of biographies which Baldi intended to write. He also published two Latin works in illustration of Vitruvius: *Scamilli impares Vitruviani a Bernardino Baldo nova ratione explicati*, Augsburg, 1612; and *De Verborum Vitruvianorum Significatione*, ibid., with a life of Vitruvius. Both have been inserted by the Marquis Poleni in his *Exercitationes Vitruvianæ*, Padua, 1741. Two inedited historical works of Baldi were published only a few years since, *Vita e Fatti di Guidobaldo I. di Montefeltro Duca d'Urbino*, 2 vols., Milano, 1821; and *Vita e Fatti di Federico di Montefeltro Duca d'Urbino*, 3 vols., Roma, 1824. These contain some curious information about the Feltre dynasty in Urbino, and about the epoch of Cæsar Borgia's rule in the Romagna. (Affò, *Vita di Bernardino Baldi.*)

BALDIVIA. [See VALDIVIA.]

BALDRICK, or BAUDRICK (Fr. *baudrier*), a military belt, band, or girdle, much used by warriors in more antient as well as in the feudal times, ordinarily encircling the waist, but occasionally pendant from the right shoulder, and sustaining a sword. Menage derives this word, through the medium of the low Latin *baldringus*, from the Latin *balteus*. Ducange derives it through *baldrellus*.

The figure of William de Valence, Earl of Pembroke, in Westminster Abbey, has a baldrick or belt finely enamelled with his coat of arms. Various arms are also enamelled on the belt of Edmund Crouchback, Earl of Lancaster's figure in the same church. The belt was an article of military dress which often marked the consequence or dignity of its wearer.

BALDWIN, or BAUDOUIN, great forester of Flanders, succeeded, A.D. 837, his father Andacer in the government of that province, as feudatory of the Emperor Louis, Charlemagne's successor. Baldwin was called 'Iron-arm,' on account of his great strength, some say, on account of his being constantly in armour. Upon the death of Louis, in 840, Baldwin, having taken the part of Lotharius against his brothers, was severely wounded in the battle of Fontenai. After peace was made among the brothers, Baldwin appeared unwilling to acknowledge his allegiance to any of the three rival princes—Lotharius, Charles the Bald, and Louis of Bavaria—his territory being situated on the boundaries of all three. Judith, daughter of Charles the Bald, King of Aquitania and of Neustria, or, in other words, of the principal part of modern France, having become a widow, by the death of her husband Ethelwolf, king of England, was returning to her father in France, when

Baldwin, who had heard of her great beauty, went to meet her at her landing. He prevailed on her to accompany him to the castle of Haerlebeck, where they were privately married, as Baldwin could not expect to obtain her father's consent, on account of his former hostility to him. Charles, incensed at the news, sent his son, Louis the Stammerer, to make war upon Baldwin, who defeated him near Arras. After the battle, Baldwin caused several of Charles's barons whom he had taken prisoners, to be hanged as the instigators of the war. The Pope, Nicholas I, having excommunicated him at the request of Charles the Bald, for the abduction of his daughter and his subsequent refusal to give her up, he resolved to journey to Rome with his wife Judith, and there he not only obtained absolution but prevailed on the Pope to send a legate to Charles of France, to settle all differences between them. The legate succeeded, and Baldwin and his wife repaired to Charles's court. Charles received them kindly, enlarged the limits of Flanders, and erected it into a county in 862. Baldwin built castles at Bruges and Ghent to defend the country against the Normans, who under their chief Hastings had landed on the coast. Baldwin died at Arras, in 877.

BALDWIN II., Count of Flanders, son of the above, married Alfrith, daughter of Alfred of England. He made war against Eudes, count of Paris, who had usurped the French crown, and defeated him. He had also disputes with Charles the Simple, the rightful heir, after the latter had ascended the throne. Baldwin died in 918, and was succeeded by his son Arnoul.

BALDWIN III., styled of the handsome beard, succeeded Count Arnoul the younger in 988. He married a daughter of the Count of Luxemburg. During the troubles that followed the death of the Emperor Otho III, the Count of Flanders seized upon several places in the neighbourhood of his territories, among others, upon Valenciennes, which he afterwards defended against the united forces of the Emperor Henry, King Robert of France, and the Duke of Normandy. It was agreed at last that he should retain Valenciennes as an imperial feud, as well as the island of Walcheren and other parts of Zealand. These he retained notwithstanding the opposition of the Count of Holland, who asserted a previous claim to them. Baldwin then obtained the hand of Adela, daughter of Robert of France, for his son Baldwin. It is recorded in the chronicles that he held an assembly of the prelates and nobles of Flanders at Oudenarde, and this appears to be the first mention made of the states of Flanders. Baldwin III died in 1034.

BALDWIN IV., called by some of Lille, and by others le Debonnaire, son of the preceding, succeeded his father. He conquered several districts on the right bank of the Scheldt, which river had till then formed the boundary between the territories of France, of which Flanders was considered a part, and those of the German Empire. These districts he retained on condition of doing homage to the Emperor for the same, and thus the Counts of Flanders were vassals of both the crowns of France and Germany. Baldwin gave his daughter Mathilda to William of Normandy, afterwards king of England. Henry I of France, at his death, appointed Count Baldwin guardian to his son Philip, then a minor. Baldwin fulfilled his trust with great honour, and defeated the Gascons, who had revolted. He then accompanied his son-in-law William to the conquest of England, and for his services on that occasion William assigned him and his successors a yearly pension of 300 marks of silver out of the English treasury. Baldwin died in 1067, and was buried at Lisle.

BALDWIN V., called the Good, and also of Mons, from his having married the Countess Richilda, of Hainault, who brought him the lordship of Mons before he became Count of Flanders, succeeded his father, Baldwin IV. He died in 1070, leaving two sons, Arnoul and Baldwin. After his death, his brother Robert, called the Frieslander, from having conquered the principality of Friesland, invaded Flanders, and defeated his nephews and Philip of France, who had come to their assistance, in a battle near St. Omer. Arnoul was killed, and Baldwin, after a time, renounced his claims on the county of Flanders in favour of his uncle and his descendants, and kept for himself the county of Hainault, which he had inherited from his mother. This Baldwin has been reckoned in the series of the princes of his family as Baldwin VI.

BALDWIN VII., grandson of Robert the Frieslander, succeeded his father, Robert the younger, as Count of Flanders, in the year 1111. He was called Baldwin Hapkin, from the name of a kind of axe used during his reign in the numerous public executions of the outlaws who infested the country, among whom were many turbulent feudal lords. It is stated in an old chronicle, that one Peter of Oostkamp, having seized two cows belonging to a poor countrywoman, was arrested and taken to Bruges, where he was condemned by Baldwin to be plunged, dressed and booted as he was, into a large cauldron of boiling water, in the market place of the town. Baldwin made war in Normandy in favour of William, son of Robert Curthose, against Henry I of England, and being severely wounded at the siege of Rouen, died soon after, in 1119. He was succeeded in the county of Flanders by Charles of Denmark, son of Adela, the daughter of Robert the Frieslander and Baldwin's aunt.

BALDWIN VIII., Count of Hainault, was descended from Baldwin VI, and became Count of Flanders after the death of Count Philip in 1191. Thus the line of Baldwin of Mons was restored, and the two counties of Hainault and Flanders were re-united. Philip of France, afterwards Philippe Auguste, married Isabella, Baldwin's daughter. Baldwin died in 1195, leaving his dominions to Baldwin IX, afterwards Emperor of Constantinople. (Oudegherst, *Chroniques et Annales de Flandre.*)

BALDWIN I., Emperor of Constantinople, was the son of Baldwin of Hainault and of Margaret Countess of Flanders. He became Count of Flanders by the death of his mother in 1194, and the following year succeeded his father as Count of Hainault. After his accession, he did homage to the Emperor Henry VI at Metz for the lands which he held in the German empire, and to King Philip II of France at Compiègne for the county of Flanders. Soon after, however, he made war upon King Philip for the recovery of the province of Artois, which had been detached from Flanders under Count Philip his uncle, and Countess Margaret's predecessor, and given as a portion to Isabella, Baldwin's sister, who married King Philip, but died in 1190. Baldwin, having made an alliance with Richard of England against the French king, conquered part of the Artois, but could not take the strong town of Arras. By the treaty of Péronne, in 1199, the Artois was divided: St. Omer, Aire, &c. were restored to Flanders, and Arras and Bethune remained with France. In 1200 Baldwin having resolved to join the fourth crusade, which was formed in consequence of the exhortations of Pope Innocent III for the purpose of reconquering Palestine, appointed his brother Philip, Count of Namur, with other persons, to the regency of Flanders and Hainault, while he and his brother Henry, with a numerous body of knights and men-at-arms, proceeded through Burgundy and Italy to Venice, which was the appointed place of meeting. His wife, Mary of Champagne, followed him afterwards. As the crusaders could not raise the sum stipulated with the Venetians for the ships and provisions which the latter had engaged to furnish, Baldwin exhorted his brethren in arms to part with their private money, their jewels, and ornaments, and he set them the first example himself. Still a large sum being wanting, Dandolo, the Doge of Venice, proposed that on their way to the East, the crusaders should stop before Zara in Dalmatia, and assist the Venetians in reconquering that place, which had revolted, and given itself up to the King of Hungary. Many of the crusaders refused and left Venice; others, and Baldwin among the rest, agreed to the proposal. The fleet sailed in October, 1202, and having stopped at Zara, the crusaders and the Venetians took the town, where they wintered. At Zara the crusaders were applied to by messengers from Alexius, son of Isaac Angelus, Emperor of Constantinople, who had been deposed, had his eyes seared out, and been thrown into a dungeon by his brother Alexius III. The young Alexius implored the crusaders to deliver his father and restore him to the throne, engaging, on his part, to give them afterwards every assistance for the recovery of Palestine, to pay them a large sum of money, and to make the Greek church acknowledge the supremacy of the Roman See. A great consultation being held by the chiefs of the crusaders, some objected to this second diversion from their original purpose; but Boniface, Marquis of Montferrat, Baldwin of Flanders, and the old Doge Dandolo, supported the entreaties of Alexius, and the expedition to Constantinople was resolved upon. They then proceeded to Corfu, where they were joined by young Alexius himself. In May, 1203, the fleet, consisting of nearly five hundred sail, left Corfu, and steered for the Hellespont; they entered

the Propontis without meeting any opposition, and cast anchor at Chrysopolis opposite to Constantinople. The plan of attack being formed, Baldwin, who had with him the best archers and a numerous body of brave knights, was appointed to lead the van. Having crossed the Bosphorus, they landed near Galata, and easily defeated the Greeks, who ran away, the usurper Alexius setting the example. The Venetian fleet forced the entrance of the harbour, and Dandolo gained possession of part of the ramparts on that side. Meantime a revolution took place within the city; the usurper Alexius escaped in a boat with his treasures, and Isaac was restored to the throne. The war was now at an end, and young Alexius being associated with his father in the imperial dignity, began to fulfil part of his promises to his allies the crusaders, who remained encamped outside the walls. He found, however, great opposition from his own subjects, especially with regard to the acknowledgment of the supremacy of Rome. A fire, too, which originated in the fanaticism of some Flemish crusaders, who were scandalized at the sight of a mosque for the use of the Saracen traders, within the walls of the imperial city, and which raged for several days, destroying some of the most populous quarters of the town, aggravated the hatred of the Greeks against the Latin intruders. The crusaders on their part, sent an insolent message to the Emperor Isaac, demanding an immediate fulfilment of the stipulations agreed upon. Hostilities broke out again in January, 1204, and this was the signal for a new revolution in the city. Another Alexius of the house of Ducas, related to the reigning family, who enjoyed the confidence of young Alexius Angelus, betrayed his friend, cast him into a dungeon, and murdered him. The old Emperor Isaac died at the same time, it was said, of terror and grief. Alexius Ducas, called Murtzuflos on account of his shaggy eyebrows being joined together, usurped the throne.

The crusaders now invested Constantinople, and at the end of nearly three months' siege a general assault was made, and the town was stormed from the harbour side as before, though after a stouter defence. The Greeks at last sued for mercy, and the carnage was stopped, but the city was given up to plunder, attended by all its concomitant excesses, although both Baldwin and the Marquis of Montferrat exerted themselves to restrain the licentiousness of the soldiers. A great share of the mischief was perpetrated, as usual in such events, by the depraved part of the population itself, and by those Latin inhabitants who, having been driven away by the Greeks some months before, now returned with their triumphant countrymen. The booty was divided between the crusaders and the Venetians; the share of the former, after deducting their debt to the republic, amounted to 100,000 marks of silver, or about 800,000*l*. sterling. Murtzuflos had run away, but being overtaken, he was condemned to be thrown from the summit of the pillar of Arcadius. The other usurper, Alexius Angelus, was also seized, and sent captive to Italy. The Latin conquerors appointed twelve electors, six Venetians and six crusaders, to choose a new emperor of the East. The crusaders proposed, at first, the gallant old Doge Dandolo, but the Venetians objected to his nomination on the ground that the imperial dignity was incompatible with that of first magistrate of their republic. The choice then fell upon Baldwin of Flanders, the most distinguished as well as the most powerful of the crusaders. The Marquis of Montferrat, the only candidate who could be his rival, was the first to swear allegiance to the new emperor. The authority of Baldwin, however, was much circumscribed; not more than one-fourth part of the provinces of the empire was appropriated to him, one half of the remainder being allotted to the Venetians, whose doge was proclaimed Despot of Romania, the other half was distributed among the adventurers of France and Lombardy. The Marquis of Montferrat had, for his share, the kingdom of Thessalonica and the island of Crete, which last he sold to the Venetians. Others received fiefs in various parts of the empire. Several provinces, however, remained in the possession of Greek princes, the relatives of the former emperors. Theodore Lascaris kept part of Asia Minor; a descendant of Andronicus Comnenus held the duchy of Trebizond; and Michael, a bastard of the house of Angeli, formed a strong principality in Epirus. Baldwin was, therefore, rather a titular than a real emperor, and all his abilities and good intentions, for which historians have generally given him credit, could not prevent the disorders inherent to such a state of things. Meantime the discontent of the Greeks was encouraged by John, or Joannices, King of the Bulgarians and Wallachians, who had revolted against the empire under Isaac Angelus. Joannices was of the Latin communion; he boasted of being of Roman descent, and he corresponded with Pope Innocent III. Rejoicing at the fall of the Greek dynasty, he sent ambassadors to the Latins to propose an alliance, but he was haughtily told that he must begin by making his submission as a vassal of the new emperor. Upon this Joannices secretly intrigued with the disaffected Greeks, promising them his support. A vast conspiracy was formed, and as soon as Henry, Baldwin's brother, had crossed over to Asia on an expedition, taking with him the flower of his troops, the Greeks of the towns of Thrace rose and massacred the Latins who were scattered among them. The survivors escaped to Adrianople, but the insurrection spread there also; the French and Venetians were slaughtered, and the fugitives fell back upon Constantinople. Meantime Joannices, having crossed the mountains of Hæmus (the Balkan), at the head of a strong force of cavalry, Baldwin sent orders to his brother to return, but without waiting for him he took the field with a small force, and advanced against Adrianople. He was surrounded by the multitudes of the Bulgarians, defeated, and taken prisoner on the 15th of April 1205. Villehardouin, the Marshal of Romania, who has left a history of the whole expedition, and the old Doge Dandolo, effected a gallant retreat with the scanty remainder of their troops. Baldwin died a prisoner of the Bulgarians in the following year. Innocent III having written to Joannices, requesting him to give up the emperor, was answered that "Baldwin had paid the debt of nature." The manner of his death is unknown. A story was circulated of his having been cruelly mutilated by Joannices at the suggestion of his wife, who was said to have been actuated by motives similar to those of Potiphar's wife towards Joseph, as related in the Book of Genesis. Henry, Baldwin's brother, succeeded him as Emperor of Constantinople. Twenty years after, a hermit appeared in Flanders pretending that he was Baldwin, but he was convicted of imposture and put to death. Mary, Baldwin's wife, died before her husband on a pilgrimage to Jerusalem. Two contemporary historians of the two opposite parties have each left us an account of the memorable events connected with the conquest of Constantinople by the crusaders; one is Villehardouin of Champagne above mentioned, and the other Nicetas, a Greek who held a high rank in the imperial court. (See Nicetas, Books XIX. XX. XXI.) There are also letters from Baldwin inserted in the *Gesta Innocentii III*. See also Lebeau, *Histoire du Bas Empire*, Ducange, the Venetian historians, and Gibbon, ch. 60.

BALDWIN II. was the son of Peter de Courtenay, Count of Auxerre, and of Yolande, sister of Baldwin I., the emperor. After the death of Henry, Baldwin's brother and successor, in 1217, Peter de Courtenay was called to the imperial throne, but Peter never reached his destination, being treacherously arrested in Epirus by Theodore Angelus, the despot of that country. He died in captivity, but the manner of his death is unknown. His second son Robert was called to succeed him on the imperial throne, and having reached Constantinople in safety, was crowned in the cathedral of St. Sophia. At his death in 1228, his brother Baldwin was yet a child, and the barons of Romania called to the throne John of Brienne, titular king of Jerusalem, on condition that young Baldwin should marry his daughter and become his colleague and successor. John of Brienne, after obtaining a victory over the Greeks of Asia Minor and the Bulgarians, who besieged Constantinople, died in 1237, and was succeeded by Baldwin. The empire of the Latins might be said to be now confined to the walls of Constantinople, and Baldwin had neither money nor abilities to retrieve his fortunes. After years of humiliating reverses and fruitless negotiations, he was surprised within his capital by the troops of Michael Palæologus, who ruled over the Greeks of Asia Minor as well as of Thrace. Michael's general, Alexius Strategopulus, found means, with the assistance of the Genoese as well as of the Greek inhabitants, to introduce a small body of men within the walls on the 25th of July, 1261. Michael was immediately proclaimed emperor by the multitude, and Baldwin had just time to escape by sea to Eubœa, and thence to Italy. With him ended the dynasty of the Latin emperors of Constantinople. Baldwin continued to his death, which occurred thirteen years after, to assume the empty title of Emperor,

which was transmitted to his descendants for several generations, until the end of the fourteenth century when it was at last dropped The last of these titular emperors of Constantinople was James de Baux Duke of Andria in the kingdom of Naples who was descended from Baldwin II by his mother's side (Gibbon ch 61 and his authorities)

BALDWIN I, King of Jerusalem was the son of Eustace, Count of Bouillon a feudal territory in the Ardennes, and of Ida of Lorraine He accompanied his two elder brothers, Godfrey Duke of Lower Lorraine or Brabant and Eustace, Count of Boulogne, to the first crusade in 1096 [See CRUSADES] Baldwin distinguished himself in several actions against the Turks of Asia Minor, and took Tarsus in Cilicia He there quarrelled with Tancred the Norman about precedence, and was near coming to battle with him As the crusaders advanced into Syria Baldwin being with his division on the left of the army near the Euphrates, was invited by the Christian inhabitants of Edessa, who were tributaries to the Turks to enter Mesopotamia He crossed the Euphrates was well received by the Edessans who soon after proclaimed him their lord Upon this Baldwin assumed the title of Count of Edessa which county continued in the hands of the Christians for about half a century He also took Samosata and other places and thus extended the limits of his territory While he was thus engaged in Mesopotamia the rest of the crusaders took Antioch in 1098 and Baldwin joined them again in attacking the Turks of Aleppo but soon after returned to Edessa while the main army advanced against Jerusalem in 1099, at the siege and taking of which city Baldwin was not present After his brother Godfrey had been elected King of Jerusalem Baldwin repaired with a large retinue to the Holy City and after having visited the sanctuaries returned to Edessa In the following year 1100 Godfrey died, and Baldwin being called to succeed him resigned the county of Edessa to his cousin Baldwin du Bourg and repaired to Jerusalem, where he was crowned on Christmas Day 1100 His reign, which lasted till 1118 was one of continual warfare against the Turks the Arabs the Persians and the Saracens of Egypt in which Baldwin displayed much bravery and perseverance, and indefatigable activity He defeated the Egyptians near Jaffa in 1101 took Acre in 1103, with the help of the Pisans and Genoese besieged Sidon and took Tripoli in Syria which he gave as a fief to Bertrand, son of Raymund of Toulouse He next marched to the assistance of his cousin of Edessa who was hard pressed by the Turks, and then quickly returned to Palestine, which had been invaded during his absence by the Arabs and the Egyptians He there met with a band of Norwegian pilgrims who had come by sea all the way from their distant country under the guidance of Magnus brother to the King of Norway With their assistance Baldwin took Sidon in 1111 In 1112 Ascalon which he had repeatedly besieged, surrendered to him and the Christians were now in possession of all the coast of Syria from the gulf of Issus to the frontier of Egypt Baldwin intending to carry the war into Egypt advanced as far as Rhinocolura which he took but proceeded no further On his return towards Jerusalem he was taken ill and died in March 1118 Baldwin was a very different character from his brother Godfrey who was a more enthusiast pure and disinterested, Baldwin was ambitious and worldly but at the same time brave clever and firm Tasso in the first canto of his *Gerusalemme* (st 8 9) has faithfully portrayed the character of the two brothers For the events of the first crusade, and the reign of Baldwin and his successors, see William of Tyre, Gibbon and Michaud *Histoire des Croisades*

BALDWIN II, or Baldwin du Bourg Count of Edessa, succeeded his cousin Baldwin I on the throne of Jerusalem, when he resigned the county of Edessa to Jocelyn of Courtenay Under his reign the military and religious order of the Templars was instituted for the defence of the Holy Land [See TEMPLARS] The order of St John of Jerusalem had been instituted many years before for pious and charitable purposes but it also now assumed a military character. Baldwin's reign, like that of his predecessor, was one of almost constant warfare against the Turks, Arabs, and Egyptian Saracens In 1123 he went to the relief of Edessa, which was attacked by the Turks, who had taken Jocelyn of Courtenay prisoner Baldwin was surprised by the Turks, and taken also Jocelyn, however, found means to escape, defeated the Turks, and obtained Baldwin's release on his paying a ransom. During Baldwin's captivity, a Venetian armament arrived in the ports of Palestine, and most opportunely for the relief of the Christian inhabitants Baldwin abdicated the crown in favour of his son in law, Foulques of Anjou, in 1131, and retired to the monastery of the Holy Sepulchre, where he soon after died

BALDWIN III, the son of Foulques of Anjou, succeeded his father in 1142 Under his reign the Christians lost Edessa which was taken by storm in 1145 by Zenghi, Turkish prince of Aleppo, and father of the famous Noureddin Baldwin had to struggle, during the greater part of his reign with the power and abilities of Noureddin, of whom he was sometimes the enemy and sometimes the ally against the Fatimite sultans of Egypt, who were perpetually at war with the Abbaside caliphs of Bagdad, to whom Noureddin bore allegiance [See NOUREDDIN] Louis VII, of France and Conrad III, Emperor of Germany, undertook the second crusade in 1147, at the exhortation of St Bernard for the object of supporting their Christian brethren of Palestine Their expedition turned out unfortunate They lost the greater part of their men in their march through Asia Minor and having reached Palestine with the remainder they joined Baldwin's forces in an attempt upon Damascus, in which they failed Conrad and Louis then returned to Europe Baldwin married Theodora the niece of Manuel Comnenus Emperor of Constantinople He died in February 1162 with suspicious symptoms after having taken some medicine from a Jewish physician at Antioch He was succeeded by his brother Amaury, or Amalric

BALDWIN IV, son of Amaury who was still a minor when his father died in 1174 was afflicted with leprosy and was nearly blind In this distressed state he had to encounter the might of Saladin who had succeeded Noureddin and had extended his power over both Egypt and Syria Baldwin however obtained a truce from Saladin He died in 1185 leaving for his successor his nephew Baldwin then a child the son of his sister Sybilla and of her first husband the Marquess of Montferrat This Baldwin who has been styled Baldwin V, died seven months after his uncle and it was suspected by poison administered by Guy de Lusignan Sybilla's second husband who next became king Soon after Guy's assumption the Christians lost Jerusalem which was taken by Saladin in 1187

BALDWIN Archbishop of Canterbury in the reigns of Henry II and Richard I This prelate was born of obscure parents at Exeter where he received a liberal education, and for some years taught school (Gervas *Act Pontif Script X* Twysd col 1675 Bale *De Script* cent ii n 27) Having entered into holy orders he was made archdeacon of Exeter but soon quitted both his dignity and the world and became a monk in the Cistercian abbey of Ford in Devonshire of which in a few years he was elected abbot and from thence in 1180 was promoted to the bishopric of Worcester (Wharton *Anglia Sacra* i 177) In 1184 King Henry II translated Baldwin to the see of Canterbury in spite of a very powerful opposition from the monks of the cathedral, where he was enthroned May 19, 1185 and on the same day received the pall from Pope Lucius III (Gervas, *Act Pontif* col 1676) Baldwin had not been long settled in the see when he began to build a church and monastery at Heckington near Canterbury, in honour of St Thomas a Becket, intending it for the reception of secular priests, but the opposition of the monks of his cathedral supported by the authority of successive popes, caused him ultimately to desist, and even to destroy the buildings which he had erected (See Gervas ut supra and the section of his work *De Discordiis inter Monachos Cantuar et Baldewinum Archiep Script X* col 1303-1334, Mat Parker, *De Antiq Brit Eccl* edit 1729, p 216) Urban III afterwards made Baldwin his legate for the diocese of Canterbury (Wharton, *Angl Sacr* ii 692) On September 3, 1189, Baldwin performed the ceremony of crowning Richard I. at Westminster (Gervas, ut supra col 1678), and in the same year, when that king's natural brother, Geoffrey, was translated from the see of Lincoln to York, he successfully asserted the pre-eminence of the see of Canterbury, forbidding the bishops of England to receive consecration from any other than the archbishop of Canterbury (Parker, ut supra p 219) In 1190 he made a progress into Wales, to preach the crusade, and in the same year, having held a council

at Westminster, he followed King Richard I to the Holy Land. He embarked at Dover, March 25, 1191, abandoning the important duties of his station and, after suffering many hardships on his voyage, arrived at Acre during the siege, where he died, Nov. 20, in the same year, and where his body was interred. (Gervas, col. 1678.)

Giraldus de Barri, or Cambrensis, who accompanied Archbishop Baldwin not only in his progress through Wales, but to the Holy Land, tells us he was of a dark complexion, an open and pleasing aspect, a middling stature, and a spare but healthful constitution of body; modest and sober, of great abstinence, of few words, and not easily provoked to anger. The only fault he charges him with is a remissness in the execution of his pastoral office, arising from an innate lenity of temper. (Giraldus, *De Vitis Sex Episc. Coætan.*; Whart. *Angl. Sacr.* ii. 129.)

Bishop Tanner (*Biblioth. Britan. Hib.* pp. 67, 68) has given a list of a great many treatises by Archbishop Baldwin, which remain in manuscript, and has noticed the different libraries in which they are deposited. The most important however, were collected by Bertrand Tissier and published, in 1662, in the fifth volume of the *Scriptores Biblioth. Cisterciensis*. The reader who desires more minute information than is given here, upon the life and labours of Archbishop Baldwin may consult the *Biog. Brit.* edit. 1778, p. 5 0; Mat. Par., edit. 1640, pp. 141, 143, 154, 157, 161; Henry, *Hist. Brit.* 8vo. edit. 1805, vol. v. pp. 408, 423; Pits, *De Illustr. Angl. Script.* an. 1193. Giraldus Cambrensis's account of Archbishop Baldwin's journey into Wales, the original Latin of which was first printed in 12mo. at London, 1585, and afterwards by Camden in his *Anglica, Normannica*, &c., fol. Francf. 1603, has been since translated and successfully compared with the present topography of Wales, by Sir Richard Colt Hoare, Bart. 4to. Lond. 1806.

BALE, JOHN, in Latin BALEUS, Bishop of Ossory in Ireland in the middle of the sixteenth century. He was born, as he himself tells us, at Cove, a small village in Suffolk, about five miles from Dunwich, November 21st, 1495, and complains that his parents, being encumbered with a large family, placed him at the early age of twelve years in the monastery of Carmelites at Norwich, whence he was afterwards sent to Cambridge; and he adds that there he had neither tutor nor patron. (Bale, *de Script. Britan.*, cent. viii. c. ult.) He was entered of Jesus College in that university, where, according to Baker's manuscript collections, we find him as early as 1511 (*MS. Harl.* 7031, p. 356). In 1529 he occurs as prior of the Carmelites of Ipswich (Strype, *Annals*, Append., No. 25). His education of course, was in the Romish religion; but some time subsequent to the last date, at the instigation of the Lord Wentworth, he turned Protestant, and gave proof of having renounced one, at least, of the rules of the Catholic religion (the celibacy of the clergy) by immediately marrying his wife Dorothy. This, as may be conjectured, exposed him to the persecution of the Romish clergy, against whom, however, he was protected by the Lord Cromwell. An original letter from Bale to Lord Cromwell occurs in the Cottonian volume (*Cleop.*, E. iv., 131), complaining of poverty, persecution, and imprisonment, and asking favour and deliverance, in which he styles himself doctor of divinity and 'late parysh prest of Thornden in Suffolk.' After Cromwell's death, Bale retired to the Low Countries, where he remained eight years, busying himself chiefly with his pen. He was then recalled into England by King Edward VI., and obtained the living of Bishop's Stocke, in the county of Southampton (Bale, *de Script.* ut supr.). In the tract which he calls his *Vocacyon*, he states that on the 15th of August, 1552, King Edward came in a progress to Southampton, whence Bale's living being only five miles distant, he mounted his horse to get a sight of the king, and 'betwixt two and three of the clock the same day he drew towards the place where his majesty was, and stood in the open street right against the gallery. The king having notice from some of the gentlemen of his privy chamber that Bale was in the street, 'marvelled thereof, for so much as it had been told him a little before that he was both dead and buried.' With that his grace came to the window, and observed him with an earnest regard: and, as Bale learnt from those who were present, immediately proposed to, and settled with, the lords of the council, that Bale should be immediately nominated to the bishopric of Ossory in Ireland, at that time vacant (*Vocacyon*, fol. 16), to which he was consecrated early in 1553. Bale's demand to have his consecration performed according to the new ceremonial of the Church of England, and his uncompromising endeavours to reduce the people, and more especially the priesthood of his diocese, hastily to the reformed religion, rendered him so unpopular, that upon the arrival of the news of Edward VI.'s death, his life was endangered: five of his servants were killed by the kernes, who attacked his house at Holmes Court, near Kilkenny; and he himself was obliged to be escorted to Dublin by a hundred horse and three hundred foot soldiers. Here also he found himself insecure, and being assaulted in Dublin by the Catholics, he at last made his escape on board a trading vessel of Zealand in mariner's apparel. This vessel was subsequently captured by a Dutch man of war, the captain of which not only made Bale his prisoner, but deprived him of all his money, apparel, and effects. The Dutch man of war being driven by stress of weather into St. Ives in Cornwall, the bishop was there taken up on suspicion of treason, but was discharged; and, a few days after, was again in danger through a false accusation, when the same vessel arrived in Dover roads. He however, got at last to Holland, where he was kept a prisoner three weeks, and then obtained his liberty on the payment of thirty pounds. (*Vocacyon*, fol. 33 41.) From Holland he retired to Basle in Switzerland (Fuller's *Worthies*, last edit., vol. ii. p. 332), and continued abroad during the short reign of Queen Mary. On the accession of Queen Elizabeth he returned to England, but not to his bishopric in Ireland, preferring a private life, and contenting himself with a prebend in the cathedral church of Canterbury, to which he was promoted on the 1st of Jan., 1559-60 (*Tann. Bibl.* ... p. ...). He died in November 1563, in the sixty-eighth year of his age, at Canterbury, and was buried there in the cathedral. (Waræus, *de Script. Hib.*, vol. ii. p. 13( ).)

Bishop Bale's fame now principally rests on his valuable collection of British biography, first published under the title of *Illustrium Majoris Britanniæ Scriptorum, hoc est, Angliæ, Cambriæ, et Scotiæ Summarium*, 4to. 1548, an account of the gradually improved editions of which will be presently given. He has himself in this very work preserved a long list of his other writings, in Latin, which Fuller has translated in his *Abel Redivivus*. Bale divided them into, 1. Those which he had compiled while yet a papist; 2. Those which he wrote after he had renounced popery; 3. His comedies in English, in various kinds of verse; 4. His works in English in prose; adding that he had written and translated many others which he could not bring to recollection. The subjects however only of his writings are enumerated in this list, and not their actual titles, so that it is impossible to ascertain distinctly from it which among them are his printed works, and which were those remaining in manuscript.

The following is the list of Bale's printed works with their successive editions, as far as they have been discovered. They are, most of them, very rarely met with.

1. 'A new Comedy or Interlude, concerning thre Lawes, of Nature, Moises, and Christe.' 8vo. Lond. 1538, 4to. Lond. 1562. 2. 'A brief Comedy or Enterlude, concernynge the Temptatyon of our Lord,' 8vo. 1538. 3. 'A Tragedie or Enterlude manifesting the chief Promises of God unto Man,' 8vo. Lond. 1538, 4to. 1577. 4. 'Yet a Course at the Romysh Foxe, against Edmond Bonner, Bishop of London, (under the name of John Harrison,)' 16mo. Zurich, 1543. 5. 'A brefe Chronycle concernyng the Examination and Death of Sir John Oldecastell, Lord Cobham,' 8vo. Lond. 1544, 12mo. Lond. W. Seres, n. d. 8vo. Lond. 1576, and 1729. 6. 'A Mystery of Inyquyte contayned within the Heretycall Genealogye of Ponce Pantolabus,' 16mo. Genev. 1545. 7. 'The Actes of Englysh Votaryes,' 1st part, 8vo. Wesel, 1546, 8vo. London, 1548; first two parts, 12mo. 1550, 1551, 1560. (No more parts were published.) 8. 'The true Hystorie of the Christen Departyng of the Reverend Man D. Martyn Luther, translated from the Latin of Justus Jonas, Michael Celius, and Johannes Aurifaber,' 8vo. Lond. 1546. 9. 'The first Examinacion of Anne Askewe, lately martyred in Smithfield,' 8vo. Marpurg in Hesse, 1546. 10. 'The lattre Examinacion of Anne Askewe,' 8vo. Marp. 1547. 11. 'A brife and faythfull Declaration of the true Fayth of Christ,' 16mo. Lond. 1547. 12. 'Illustrium Majoris Britanniæ Scriptorum, &c. Summarium, in quasdam Centurias divisum,' 4to. Wesel, 1548, (at the end, 'Gippeswici in Anglia, 1548,') Five Centuries, fol. Bas. 1557; Nine Cen-

turies, fol. Bas. 1559, with a second part, carrying the work on to fourteen centuries. A copy of the edition of 1548, corrected by Bale's own hand, is preserved in the library of the British Museum. 13. 'The laboryouse Journey and Serche of Johan Leylande for Englandes Antiquities,' 16mo. Lond. 1549, reprinted in the Life of Leland, 8vo. 1772. 14. 'A Dialogue or Communycacyon to be had at a Table betwene two Chyldren, gathered out of the Holy Scriptures by John Bale for his two yonge Sonnes, Johan and Paule,' 8vo. Lond. 1549. 15. 'The Confession of the Synner after the Sacred Scriptures,' 8vo. Lond. 1549. 16. 'The Apology of Johan Bale against a ranke Papyst,' 8vo. Lond. 1550. 17. 'The Image of both Churches,' 2 parts, 8vo. Lond. J. Daye; 3 parts, 8vo. Lond. T. East (1550), 8vo. Lond. 1581. 18. 'An Expostulation or Complaynte against the Blasphemyes of a frantic Papyst of Hamshyre,' 8vo. Lond. (1552); another edit. 1581. 19. 'The Vocacyon of Johan Bale to the Bishoprick of Ossorie in Irelande, his Persecucions in the same, and finale Delyveraunce,' 12mo. Lond. 1553. 20. 'A Declaration of Edmonde Bonner's Articles concerning the Cleargye of London Dyocese,' 8vo. Lond. 1561. 21. 'Acta Romanorum Pontificum a dispersione Discipulorum Christi usque ad tempora Pauli quarti, ex Joannis Balæi Catalogo Anglicorum Scriptorum desumpta,' 8vo. Francof. 1567; 8vo. Leyd. 1615. 22. 'The Pageant of Popes,' translated from the Latin of Bale, by I. S. (John Studley), 4to. Lond. 1574. Bale also himself translated Baptist Mantuan's 'Treatise on Death,' 8vo. Lond. 1584; and in 1548 prefixed an epistle dedicatory to the Princess Elizabeth's translation of the Meditations of Margaret Queen of Navarre, published at London, 8vo., in that year. Wood (*Athen. Oxon.* edit. Bliss, vol. iii. col. 435) says Bale translated Polydore Virgil's work *de Rerum Inventoribus* in the time of Edward VI., but in old and rude English. He does not say whether this translation was published.

Fox tells us (*Acts and Monuments*, 1st. edit., p. 574) that Bale wrote several books under the name of Harrison. One work only appears under that name in the preceding list. Bale's father's name was Henry Bale, and on that account perhaps Bale assumed the name of Harrison.

His *Collectanea* (in his own handwriting) *de Religione Carmelitana, et Scriptoribus ejusdem*, 4to., is still preserved among the Harleian Manuscripts in the British Museum, No. 1819. Hearne writing to Baker, the Cambridge antiquary, in 1715, says, Dr. Sloane had just then presented to the Bodleian a MS. of Bale's account of the Carmelites. Tanner, in his *Bibliotheca Britannico Hibernica*, has given a list of some other of Bale's manuscripts, with notices of where they are preserved.

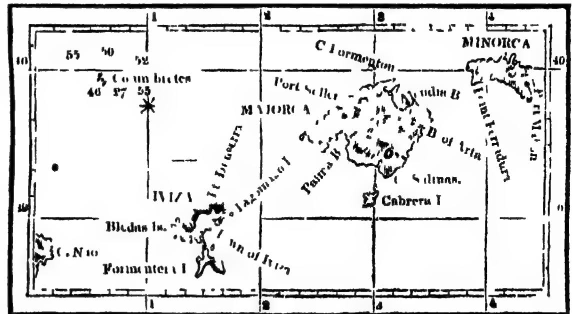
No character has been more variously represented than Bale's. Gesner, in his *Bibliotheca*, calls him a writer of the greatest diligence; and Bishop Godwin gives him the character of a laborious inquirer into British antiquities. Similar praise is also bestowed upon him by Vogler (*Introd. Universal. in Notit. Scriptor.*) Anthony à Wood, however, styles him 'the foul-mouthed Bale.' Hearne (*Pref. to Hemingf.*) calls him 'Baleus in multis mendax.' And even Fuller (*Worthies*, last edit. vol. ii. p. 332) says 'Biliosus Balæus passeth for his true character.' He inveighed with so much asperity against the pope and papists that his writings were prohibited by the church of Rome among those of the first class of heretical books; and his intemperate zeal, it must be acknowledged, often carried him beyond the bounds of decency and candour. Fuller, in his *Church History*, cent. ix. p. 68, pleads for Bale's railing against the papists. 'Old age and ill usage,' he says, 'will make any man angry. When young, he had seen their superstition; when old, he felt their oppression. The best is, Bale rails not more on papists than Pits (employed on the same subject) on Protestant writers; and even set one against the other, whilst the discreet reader of both, paring of the extravagances of passion on each side, may benefit himself in quietness from their loud and clamorous invectives.' The greatest fault of Bale's book on the British writers is its multiplication of their works by frequently giving the heads of chapters or sections of a book as the titles of distinct treatises. He has likewise put many persons down as authors who had no claim to such distinction.

Beside the references already given relating to Bale, the reader may compare *Biogr. Brit.* edit. 1778, vol. i. p. 532; Fuller's *Abel Redivivus*, p. 502—511; Tanner, *Bibl. Brit. Hib.*, p. 65; Cole's MS. *Athenæ Cantabr.* lett. B.; Granger, *Biogr. Hist.*, vol. i. p. 139; Strype's *Memorials of Cranmer*, pp. 206, 306; and Chalmers's *Biogr. Dict.*

BALE. [See BASEL.]

BALEARIC CRANE. [See CRANE.]

BALEA'RIC ISLANDS (Γυμνήσιαι (Gymnasiæ), Βαλιαρίδες, Strab., Βαλλιαρεῖς, Diod., Baleáres, Plin.) are situated in the western part of the Mediterranean, off the east coast of Spain, to which country they now belong. These islands are three in number (exclusive of the two smaller ones of Formentera and Cabrera), namely, Iviza, Mallorca (Majorca), and Minorca. They lie in a N.E. and S.W. direction, occupying a space of 160 miles in length, by a mean breadth of 30 miles, with an area of 4800 square miles. Iviza, the nearest to the Spanish coast, is distant from Cape Nao 50 miles; Majorca, the central and the largest, lies 43 miles to the N.E. of Iviza: and Minorca is separated from Majorca by a strait 22 miles in width. These islands are now generally comprehended under the term Balearic, as they are by Strabo, who mentions only four, and classes them under the names of *Gymnesiæ* (Majorca and Minorca), and *Pityusæ* (Iviza and Formentera), giving the name Balearic to the whole group. The name Pityusæ is supposed to be a Greek term derived from the pine trees with which the larger island abounded. The two Pityusæ were called by the Greeks respectively Ebusus and Ophiusa (snake island), which last the Romans translated into Colubraria. Cabrera is the Capraria of the Roman geographers.



The figures round the Columbretes signify the depth in fathoms.

[From the Survey of Don Vicente Tofiño.]

The word Baleáres is generally admitted to be from the Greek βάλλω, 'to throw:' the original inhabitants were very expert in the use of the sling, to which they were trained from their infancy: and their dexterity as slingers, while serving in the Carthaginian and Roman armies, is often noticed by antient authors.

The Phœnicians, it appears, were the first settlers in these islands, which, however, had a race of original inhabitants. The Carthaginians, under Hanno, having made themselves masters of the whole group, proceeded to form new settlements, and founded the towns of Mago (Mahon) and Jamnon (Ciudadela). The islands furnished them with considerable bodies of troops in their wars against Sicily and Rome, and a large force of their slingers accompanied Hannibal in his passage across the Alps. When the Carthaginians were driven from Spain, the islanders obtained their freedom, which they made use of to apply themselves to piracy till they were subdued by the Roman consul, Q. Metellus, who founded the cities of Palma and Pollentia in Majorca, and took the surname of Balearicus. They continued attached to the Republic as part of Hispania Citerior, and subsequently to the empire, when the Balearic islands probably belonged to the judicial district (*conventus juridicus*) of New Carthage, one of the seven jurisdictions of Hispania Citerior, otherwise called Tarraconensis. From the reign of Constantine the Great till the reign of Theodosius the Great they had their own government. Spain having fallen into the hands of the Vandals and Huns, a body passed over to these islands, which became an easy conquest, and afterwards, with that peninsula, were subdued by the Moors. The depredations of these barbarians induced Charlemagne to undertake an expedition against them, and he obtained possession of the islands: but he only kept them six years, when they were recovered by the Moors, who continued practising piratical excesses against the Christian powers. Instigated by several bulls of the Pope, the Kings of Arragon made frequent attempts against them. Majorca fell in 1229, but the Moors were not finally expelled from the whole group till

nearly sixty years after, when they were formally annexed to the crown of Aragon Minorca was taken by the English in 1708, and finally ceded to them by the treaty of Utrecht but on the breaking out of the war it was recaptured by the combined force of France and Spain In 1798 it again surrendered to the British, and remained in their possession till the peace of 1814, when it was restored to Spain

Relics of the original inhabitants may be traced in large tumuli of great rough stones, enclosed in a fence of large flat stones set on end close together—erected probably over their dead, though, from their being always erected on elevated spots, and having a spiral path contrived outside to ascend to the summit, they appear also to have served the purpose of watch towers Of Roman antiquities there are few vestiges, as their works were all zealously destroyed by the Vandals and Huns on their occupying the islands but several Roman inscriptions remain, and lamps, urns, and coins, both consular and imperial, are often found The buildings of the Moors may be known by their style of architecture, such are the small castles and watch towers and much of the walls of cities, as is proved by the Arabic inscriptions on them

These islands are hilly, and Majorca may be termed mountainous, but they are not of volcanic formation Granite marbles, jasper, porphyry, slate, and pit coal are found also lead and iron The soil is generally good, and chiefly cultivated with vines olives, and other fruit trees but corn is not produced in sufficient quantities for home consumption This article and cattle form the principal imports of the islands, in exchange for wines and brandies of an inferior quality, coarse woollen cloths and dried fruits the pottery ware made in these islands is also much esteemed The general features of the coasts are steep and rugged surrounded by rocks and islets but affording some excellent harbours The water around them is deep There are no rivers but the mountain torrents during the rains and on the melting of the snows are impetuous [See MAJORCA MINORCA &c] (Strabo, p 167 Casaub Diodoru, lib v 17 18 Plin iii 5 P Mela ii 7 Dameto's *Hist of the Balearic Kingdom* Armstrong's *Minorca* Sauveur's *Travels in the Balearic Islands*)

BALFOUR SIR JAMES of Pittendreich, Lord President of the Court of Session in Scotland and the reputed author of Balfour's *Practicks of the Law* was son of Sir Michael Balfour, of Pittendreich and Montquhanny county Fife and in his early years received a liberal education for the church, in the course of which he distinguished himself particularly in the study of the canon and civil laws The clerical profession in Scotland had long engrossed some of the first offices of the state, and, by the establishment of the Court of Session had brought to a favourable termination an arduous contest with the Lord Justiciar for the supreme place of judicature Just at this time the great religious revolution which had overthrown the papal power in the neighbouring kingdom began to extend itself to Scotland, and though from its being in the former directed by the sovereign, whereas in the latter it was altogether popular, the mode of its operation in the two countries must have been dissimilar, yet there is little doubt that not a few anticipated here the same easy and rich conquest which had been achieved in England Among others young Balfour left the antient religion and joined the standard of the Reformation, and was indeed the chief and principal Protestant that then was to be found in this realm, and wald have given his lyf gif men micht credite his wordes, for defence of the doctrine that John Knox taucht —Knox's *Hist of the Ref*, p 75 He also joined the conspiracy led by Norman eldest son of the Earl of Rothes against the Cardinal Beatoun, and being taken in the castle of St Andrews when that fortress surrendered to the French auxiliaries in the end of the summer of 1547, was put into the same galley with Knox, and carried prisoner to France. The cause of Scottish Protestantism seemed now at an end, and the partisans of Rome shouted with joy through the streets—

> Ye priests content ye nou,
> Ye priests content ye nou,
> For Normand and his companie
> Hae fill'd the galleys fou!

There was, however, no reason for congratulation the reformers were yet alive, and the evils inflicted on their party proved only as the process of the winnowing floor, which separates the chaff from the wheat. Accordingly, on the peace of 1549, Knox, Balnavis, and others returned to Scotland with new ardour in the cause of the reformation Balfour also returned but professed himself a Roman Catholic and had even the effrontery to deny that he had been of the Protestant party though, as Knox says, his own conscience and a thousand witnesses could testify the fact He was immediately appointed official of St Andrews within the archdeaconry of Lothian, vacant by the promotion of Creighton provost of Dunglas to the bench of the Court of Session and in this situation, with the zeal of a suspected confederate, he proceeded *ex officio* against the poor old priest Walter Mylne for heresy, because he had given up saying mass, and had him condemned to the flames and burnt

On the breaking out of the civil war between the congregation and the queen regent in 1559 Balfour took the part of the latter yet it appears he knew all the transactions of the former, a boy of his being taken with a writing 'quhilk did open the maist secreit things that wer devysit in the counsail yea those very things quhilk were thoucht to have been knowen bot to a very few —Knox p 184 He escaped the search of the reformers in Fife in February 1560 and was about the same time appointed parson of Flisk in that shire Soon after the arrival of the young queen in 1561 he was appointed an extraordinary lord of session and on the 5th of November, 1563, advanced to the place of an ordinary lord in the same court On the institution of the Commissaries Court of Edinburgh, in the room of the court of the official of Lothian he was constituted its chief judge and on the 5th of July 1565, he was sworn of the queen's privy council To these various employments of privy councillor judge and priest, he seems to have added the practice at the bar for in January 1566 we find him in the court of justiciary as assistor of the crown in the criminal prosecution against old Andrew Ballingall, of Drumbirno for wilful absence from the raid of Stirling —Pitcairn's *Crim Trials* He was with the queen at Holyrood on the night of Rizzio's assassination, and if we believe her statement his death also was in contemplation, though we shall afterwards find Darnley accusing him to her of being accessory to the crime But however this may be he not only effected his escape from the palace but he drew honours conferred upon him, the queen immediately afterwards creating him a knight and appointing him lord clerk register in the room of M'Gill, who was one of the conspirators and had fled

The same year a royal commission was issued on the suggestion of Lesly Bishop of Ross, that 'certain learnit wise, and expert men quhilk best knawis the laws suld be chosen to see and examinate the buikis of law and set them furth to the knowledge of the queene's subjects The result was a volume of acts of parliament from 1424 to 1564, which was printed within six months after the date of the commission, and bears abundant marks of the precipitation with which it was thrown upon the public but in the compilation of it, such as it was Lesly and Balfour are especially noted for their diligence and exertions

From this hasty yet peaceful work of a legislator Balfour was already hurrying to a scene of treachery and blood He saw the influence of Bothwell in the royal closet To that nobleman therefore, he attached himself and quickly joined in the conspiracy against the youthful Darnley who, with something like a presentiment of his fate now urged the queen to accuse Balfour of being accessary to the murder of Rizzio and to dismiss him from her councils Balfour framed the bond for mutual support entered into by the conspirators and prepared the house in the kirk of Field for the execution of the deed but was not actually present on the occasion Accordingly he was distinctly charged as an accomplice in the crime, both in the Earl of Lennox's despatch, and in the popular placard put up in answer to the government offer of a reward for a discovery of the perpetrators —'I have made inquisition for the murder of the king (says the anonymous accuser), and do find the Earl of Bothwell, Mr James Balfour, parson of Flisk Mr David Chalmers, and black Mr John Spens the principal devisers thereof Bothwell was brought to an early trial which no entreaty of Lord Lennox, his prosecutor, could stay but as the evidence was not ready, his guilt was not established, and he was acquitted. It would appear that Balfour professed a determination to have himself cleared by an assize also, but he afterwards saw it expedient not to press this, or play with an edged tool

On the 22d of April, 1567, the queen, under the influence

of Bothwell, who no doubt imagined he had Balfour bound to him, if by no other tie, at least by that of fear of public justice, appointed him captain of Edinburgh Castle, in the room of Sir William Cockburn of Skirling, to whom she had given it in charge only on the 8th of March preceding. Both the queen and Bothwell, however, lived to repent of their confidence, and on their fortunes falling sought to displace Balfour, who now disowned his lieutenancy, and holding the fortress as 'full master thereof,' began to treat with the associate lords for its surrender to them. On the defeat of Carberry, Bothwell despatched a special messenger to the castle for Mary's letters. These Balfour delivered; but, as Bothwell's influence was now entirely gone, he first sent notice to the associate lords, who watched the messenger's return, attacked him, and carried off the famous casket with its contents, to which they ever after appealed in proof of Mary's guilt, and in justification of their conduct towards her. We afterwards find Balfour negotiating with the Earl of Murray, regent for the infant James, in whose favour Mary had been forced to resign her crown, for the delivery of the castle, which was at length surrendered on the following extraordinary conditions:—1st, a pardon for art and part in Darnley's murder; 2d, a gift of the priory of Pittenweem; 3rd, an annuity to his eldest son out of the priory of St. Andrews; 4th, a large sum (Spottiswoode calls it 5000*l.*) in present hand; and 5th, delivery of the castle into the hands of Kirkcaldy of Grange, an adherent of the queen's. Murray, on attaining the regency, pursued in religion the same course of policy which Bothwell had held, favouring the reformation; and in his first parliament we find a commission issued, and Balfour (now prior of Pittenweem) named therein, to ascertain the jurisdiction of the church of Scotland. In the same parliament we find Balfour *a lord of the articles* on the spiritual side; and on the 12th of September, 1567, he was sworn of the privy council. He soon afterwards resigned his place of lord clerk register to please the regent, who wished to restore M'Gill. For this he got a pension of 500*l.*; and was raised to the chair of Lord President of the Court of Session, in the room of Bailie of Provand, who had occupied it for about two years, but was now hastily turned out on the pretence of his not being a prelate, agreeably to the institution of the court.

At the battle of Langside, May 1568, Balfour was in the rear-guard with the regent, and displayed no little valour on the occasion; yet in the end of the same year, when the regent and his commissioners were in England at a conference called by Queen Elizabeth to consider of Mary's guilt or innocence in the matter of Darnley's murder, he remained in Scotland, and endeavoured to agitate there for her restoration. This conduct so incensed the Lord Lennox, that he had him apprehended in order to be tried for the murder: but by means, it is said, of bribes administered to Wood, the regent's secretary, Balfour effected his peace with Murray, and regained his liberty, though he lost his situation of President of the Session, to which Bailie of Provand now returned.

The year 1570 opened with the murder of *the good regent* by Hamilton of Bothwellhaugh, an event which appears to have inspired Mary's adherents with great hopes. Of those Balfour was now one; and on the 30th of August, 1571, he and some others of that side were attainted in a parliament held by the king's men. For a while the queen's party had some success, and in September 1571 Mary was made regent; but the aspect of affairs soon changed: an alliance was formed between France and the Queen of England, who also at length openly declared for the king's party, and lent her powerful aid to place Morton in the regency. Morton, on his becoming regent, endeavoured to effect a settlement with the queen's party; but all his overtures were rejected by Maitland and Kirkcaldy. Balfour, however, readily acceded to the triumphant Morton, whom he also endeavoured to conciliate by acts of vile treachery. He was mainly instrumental in bringing about the concord called the Pacification of Perth, in February 1572, whereby his late coadjutors were given over to the tender mercies of the regent; and on the brave Kirkcaldy he inflicted a further blow when he revealed to Morton that Kirkcaldy's brother was about to land at Blackness with a supply of money from France. In July 1572 Morton brought his victims to trial for Darnley's murder, and had them sentenced to the scaffold. Balfour, however, not only escaped a trial, but the following year had his forfeiture annulled and himself restored by act of parliament; and in 1574 the regent committed to him and Skene a design for a general digest of the laws. What progress was made in this matter, and whether Balfour's *Practicks* was the result, does not certainly appear. Balfour did not remain much longer in the country: dreading the ground on which he stood, he fled to France, where he continued till the young king of Scotland assumed the reins of government. He then returned to his native country, and joined the party who watched for the destruction of the yet formidable Morton. The same year he was one of the arbiters chosen by the Earls of Argyll and Athol, in the attempt then made to effect a reconciliation. On the 5th of February, 1578, we find him at the bar, as one of the advocates, or as they were then frequently called 'prelocutors,' for the prosecution in the criminal trial of one Thomas Turnbull for murder. The following year Morton recovered his authority, and Balfour again fled from before him. An act was thereupon passed in Parliament, renewing the forfeiture which had been pronounced in 1571, a proceeding against which Balfour afterwards protested on the ground of his restoration in 1573; and his plea, though not immediately, was ultimately successful. The death of Morton, whose enemies daily increased both in number and power, was now to be accomplished: and as Balfour had taken care to preserve the bond by that nobleman and others in support of Bothwell in the murder of Darnley, a plan was speedily devised: Morton was accused of treason, tried, convicted, and beheaded.

This was Balfour's last public act, and it too clearly shows that age had in no degree dulled his capacity for intrigue nor his thirst for revenge. He died soon after, in the year 1583. After his death, he was restored, against the forfeiture of 1579, by act of parliament; but acts of parliament can wipe off those taints only which human laws have created: they cannot remove the stains of profligacy, nor wash away infamy from the memory of the corrupt. (See Knox's *Hist. of the Ref.*; Keith's *Hist. of the Ref.*; Goodal's Preface to *Balfour's Practicks*; Tytler's *Life of Craig*, *Historical Account of the Senators of the College of Justice.*)

BALFOUR, JAMES, of Pilrig, in the shire of Edinburgh, was admitted an advocate of the Scottish Bar on the 14th of November, 1730; and on the decease of Mr. Bayne, professor of Scots law in the University of Edinburgh, in the beginning of 1737, he and Mr. John Erskine, of Carnock, advocate (afterwards author of the well-known Principles and Institutes of the Scots law), were presented by the Faculty of Advocates to the patrons of the vacant chair, who made choice of Mr. Erskine. Balfour was afterwards appointed sheriff substitute of the county of Edinburgh, but having occupied himself much with philosophical science, he early became an opponent of the celebrated David Hume, whose speculations he attacked in two anonymous treatises, the one entitled a 'Delineation of Morality,' the other, 'Philosophical Dissertations.' It is seldom that opposition procures an antagonist's esteem, but Balfour's had that rare merit. On the 15th of March, 175[illegible], he received from Hume a letter which began thus: 'When I write to you I know not to whom I am addressing myself: I only know he is one who has done me a great deal of honour, and for whose civilities I am obliged. If we be strangers, I beg we may be acquainted as soon as you think proper to discover yourself; if we be acquainted already, I beg we may be friends; if friends, I beg we may be more so.' In 1754 he resigned his judicial office, having on the death of Professor Cleghorn, in August of that year, been elected his successor in the chair of moral philosophy, at Edinburgh. This he resigned, in May 1764, for the chair of public law; and soon afterwards he published what appear to have been his lectures while in his former situation, under the title of *Philosophical Essays*. In the spring of 1779 he resigned the chair of public law, and retired to Pilrig, where he died, 6th of March, 1795, at the age of 92, having spent (says the author of the *Life of Kames*, who must have known him well) a long life in the practice of those virtues which it was the object of his writings to inculcate.

BALFRUSH, BALFROOSH, or BALFUROSH, a town in the province of Mazenderan in Persia, is about twelve miles from the south shore of the Caspian Sea. Though only the second city of the province in rank, it is larger than Saree, the capital. The city stands on a low and swampy plain, in and surrounded by a dense

forest of tall trees, which so conceal the buildings, that, except in the bazaars, it has no appearance of being a large and populous place. The houses, which are comfortable, well built, roofed with tiles, and enclosed by a wall, stand in clusters, of which there are twenty distinct groups. The streets or roads are broad and neat, though chiefly unpaved; they are free from rubbish, and kept in good order. The bazaars extend full a mile in length; they are covered in from the sun and rain by a roofing of tiles and wood, and are kept in excellent repair. The display of merchandize is better than in almost any town in Persia, except Ispahan. Balfrush is peopled almost entirely by merchants, mechanics, and their dependants. It is governed by a native, also a merchant, who dares not oppress them or extort exorbitant levies: it is moderately taxed, and not required to furnish any contingent of troops. Its greatest happiness and prosperity consist in not being burdened with the weight of an aristocratical or military government. The town does not lay claim to any antiquity, and it may be difficult to give a reason for the choice of such a site, but it owes its present state of prosperity chiefly to its commerce, though that has of late years much diminished, and likewise to the richness and productiveness of the plain in which it stands. This plain extends southward from the Caspian thirty miles to the first range of low hills, and its principal products are rice, cotton, and sugar. Wheat is little grown, and what is used is imported from other provinces. Rice, buttermilk, butter, an inferior sort of cheese, sour oranges, and the wild pomegranate are the principal food of all classes. The roads around are frequently impassable, owing to their being cut up by the numerous watercourses; even the great causeway of Shah Abbas, in the neighbourhood of Balfrush, is quite destroyed. There are no public buildings of any importance in the town, those erected by Shah Abbas having fallen to decay. There are, however, about ten principal caravansaries, and thirty colleges, or medrasses, the place being almost as much celebrated for its moollahs and learning as for its merchants and commerce. The plain abounds with numerous reservoirs for irrigation; and near the city is an artificial lake of considerable depth, two miles in circumference, with an island in the centre laid out as a beautiful garden, and connected by a bridge with the border of the lake. The Bawul river runs through this lake, and empties itself into the Caspian at Mushed-Sir. A bridge of nine arches has lately been thrown over it. The trade is carried on by horses and mules, which travel in caravans. The place is unhealthy, and subject to those diseases which may be expected from its low and damp situation — acute and intermittent fevers, affections of the eyes, putrid sore throat, and rheumatisms. Its population is estimated at 20,000. It lies about 30 miles west of Saree, the capital of the province, in 35° 55′ N. lat., 32° 40′ E. long. (J. B. Fraser's *Travels and Adventures*.)

BALGUY, JOHN, an eminent divine of the church of England, was born August 12th, 1686, at Sheffield; and was educated in the Grammar School of that place, partly under his father, and partly under the instruction of a Mr. Daubuz, who had succeeded his father as master there. He became a member of St. John's College, Cambridge, in 1702, and in 1706 was admitted to the degree of B.A., soon after which he ceased to reside in the University, and for awhile taught in the grammar school at which he was brought up, but whether as master, or during a vacancy of the mastership only, is uncertain. In 1708 he was taken into the family of Mr. Banks of Revesby, in the county of Lincoln, where he became private tutor to his son Joseph Banks, Esq., grandfather to Sir Joseph Banks, Bart., President of the Royal Society. Mr. Balguy took orders in 1710; in 1711 he became private tutor in the family of Sir Henry Liddell, of Ravensworth Castle in the county of Durham, who afterwards bestowed upon him the donative of Lamesly and Tanfield in that county; and he married in 1715.

The first occasion of Mr. Balguy's appearance as an author was afforded by the Bangorian controversy. In 1718 he published, without his name, Silvius's *Examination of certain Doctrines lately taught and defended by the Rev. Mr. Stebbing*; and in the following year, Silvius's *Letter to the Rev. Dr. Sherlock*. Both of these performances were written in vindication of Bishop Hoadly. Mr. Stebbing having written against these pamphlets, Mr. Balguy, in 1720, again appeared in the cause of the bishop, in a tract entitled Silvius's *Defence of a Dialogue between a Papist and a Protestant, in answer to the Rev. Mr. Stebbing; to which are added several Remarks upon that Author's manner of Writing*. This also being answered by Mr. Stebbing, Mr. Balguy had prepared a further defence; but Dr. Hoadley prevailed upon him to suppress it, the public having grown weary of the controversy, and the booksellers being unwilling to publish any new works relating to it at their own risk. In 1726 he took the degree of M.A., and in the same year published *A Letter to a Deist concerning the Beauty and Excellence of Moral Virtue, and the Support and Improvement which it receives from the Christian Revelation*. In 1728 Mr. Balguy was collated, by Bishop Hoadly, to a prebend in the church of Salisbury. In 1727 or 1728 he preached an assize sermon, on the subject of 'Party Spirit,' which was printed by order of the judges; and in the latter year published a tract entitled *The Foundation of Moral Goodness*, in answer to Mr. Hutcheson's *Inquiry into the Original of our Ideas of Beauty and Virtue*; its design was to show that moral goodness does not depend solely upon instincts and affections, but is grounded on the unalterable reason of things. In 1729 he became vicar of North Allerton in Yorkshire, in which preferment he continued to his death. In 1729 he also published *The Second Part of the Foundation of Moral Goodness*, illustrating and enforcing the principles contained in the former part, which had been answered in some remarks written by Lord Darcy. His next publication was *Divine Rectitude: or a brief Inquiry concerning the Moral Perfections of the Deity, particularly in respect to Creation and Providence*. It was followed by *A Second Letter to a Deist concerning a late Book, entitled 'Christianity as old as the Creation,' more particularly that Chapter which relates to Dr. Clarke*. To this succeeded *The Law of Truth, or the Obligations of Reason essential to all Religion; to which are prefixed some Remarks supplemental to a late Tract entitled 'Divine Rectitude.'* All the treatises which have been mentioned (excepting the assize sermon, and those on the Bangorian controversy) were collected, after having gone through several separate editions, by Mr. Balguy, into one volume, and published with a dedication to Bishop Hoadly, 8vo., London, 1734. In 1741 appeared Mr. Balguy's *Essay on Redemption*, in which he explains the doctrine of the atonement in a manner similar to that of Dr. Taylor of Norwich, but Hoadley was of opinion that he had not succeeded. This and his volume of sermons, including six which had been published before, were the last pieces committed by him to the press. A posthumous volume was afterwards printed, which contained almost the whole of the sermons he left behind him. While in possession of the donative of Lamesly and Tanfield, for the first four years he never intermitted one week without composing a sermon; but fearing that his son, who was afterwards in orders also, might not follow his example, he destroyed almost his whole stock, and committed, at one time, two hundred and fifty sermons to the flames. The third edition of Mr. Balguy's *Sermons* (twenty in number) was published in 2 vols. 8vo., London, 1790. He died at Harrowgate, September 21st, 1748. The account of Mr. Balguy here given has been chiefly abridged from the life of him communicated by his son to the editors of the *Biographia Britannia*, edit. 1778, vol. i., p. 548—552.

BALGUY, THOMAS, D.D., only son of the preceding, was born at Lamesly, in the bishopric of Durham, September 27th, 1716, and was educated at the free school of Ripon in Yorkshire. In 1734 he was admitted at St. John's College, Cambridge; took the degree of B.A., 1738; M.A., 1741; D.D., 1758. In March, 1740, he had been elected Fellow of his college, upon Mr. Platt's foundation, which he vacated in 1748, upon being presented by his father (under the right of his prebend of Salisbury) to the living of Stoke, near Grantham in Lincolnshire. He was also for a time joint tutor of St. John's College. By the interest of Bishop Hoadly he obtained a prebend in the cathedral of Winchester in 1757; became archdeacon of Salisbury in 1759; and afterwards archdeacon of Winchester. In 1769 he published a sermon preached at Lambeth at the consecration of Jonathan Shipley, D.D., bishop of Llandaff, which was attacked by Dr. Priestley. In 1771 he was presented by the dean and chapter of Winchester to the vicarage of Alton in Hampshire, upon which he resigned his former living of Stoke. In 1772 he published *A Defence of Subscription to Articles in Religion*, in a charge delivered to the clergy of his archdeaconry, which produced a reply from

a dissenting minister of the name of Palmer. His sermon at the consecration of Bishops Hurd and Moore, also published in 1775, produced some *Remarks by One of the Petitioning Clergy*. In 1775 he edited the sermons of Dr. Powell, master of Jesus College, Cambridge, with a life of that divine prefixed. In 1781 the declining state of his health, and particularly the decay of his sight, which ended at last in total blindness, prevented his acceptance of the bishopric of Gloucester, to which his Majesty, without any solicitation, had nominated him upon the death of Bishop Warburton. In 1782 he published *Divine Benevolence asserted and vindicated from the Reflections of Antient and Modern Sceptics*, 8vo., thought to be by far the ablest of his performances, though only part of a large dissertation on natural religion, which he did not live to complete. It was reprinted in 12mo., London, 1803. In 1785 he republished his father's *Essay on Redemption*, with a preface, seemingly intended to bring his father's sentiments nearer to the orthodox belief. A collection of his sermons and charges appeared the same year, under the title of *Discourses on Various Subjects*, 8vo. These were again printed in 1822 at Cambridge, with additions, in two volumes, edited by the Rev. James Drake. Dr. Balguy died January 19th, 1795, in his 79th year, at his prebendal house at Winchester, and was buried in that cathedral. In 1831 a small portion of a course of lectures on the feudal laws and the English constitution, which Dr. Balguy had composed while resident at Cambridge as tutor of his college, was published under the title of—1. *Connected View of the several Steps by which the Parliament of England obtained its present Form*; 2. *The Maxim that Power follows Property applied to the History of the English Constitution*, 8vo. The chief materials of this account are derived from Nichols's *Life of Bowyer*; Chalmers's *Biogr. Dict.* vol. iii. p. 383; and the *Memoir* of Dr. Balguy, prefixed by Mr. Drake to his edition of the *Discourses*, 8vo. 1822.

BALI ISLAND. [See Bally.]

BALIOL. [See Balliol.]

BALISTÆ. [See Artillery.]

BALISTES (in Zoology), an extensive genus of fishes, belonging to the Cuvierian order *Plectognathes*, and family *Sclerodermes*. The groups thus denominated by Baron Cuvier are intermediate in point of structure between the common, or osseous, and the cartilaginous tribes; for though the skeleton is in reality of a fibrous or bony texture, it ossifies very slowly, and is never entirely complete; the ribs, in particular, usually remain imperfect throughout the whole period of the animal's life. The maxillary and intermaxillary bones, again, form but a simple piece, distinguished only by a slight suture or furrow at the point of junction, and the palatal arch is soldered firmly to the skull, and consequently devoid of individual motion. The opercula and gill-rays are concealed beneath the skin, which gave origin to an opinion, at one time common even among professed naturalists, that these fishes wanted the bronchial apparatus altogether; an error, which, like many others of a similar nature, had its origin in hasty and defective observation, and which a more extensive cultivation of comparative anatomy, the only true basis of zoology, has long since corrected.

The balistes are particularly distinguished by the vertical compression of the body, by having eight teeth arranged in a single row in each jaw, and a scaly or granulated skin. They have two dorsals; the first composed of numerous powerful spines, articulated to a peculiar bone, itself articulated to the skull, and furnished with a longitudinal furrow for the reception of the spines, which can be erected or depressed at the will of the animal; the second large, soft, or without spines, and placed opposite to an anal fin of similar structure. Like other genera of the same order, the balistes have no ventral fins; notwithstanding which, however, their skeleton is furnished with a complete pelvis, suspended from the bones of the shoulder. The intestinal canal is large, but without cæca, and the air-bladder of considerable size. These fish abound in all the seas of the torrid zone, where they swim on the surface of the water, particularly in the neighbourhood of rocky coasts and coral reefs, feeding with avidity upon the polypi of the latter, and shining with the most brilliant and varied colours. Their flesh is at all times a very indifferent food, and is said to be actually poisonous during the period that the coral worms are in season. The species are very numerous, but possess no peculiarities or useful qualities which would entitle them to a detailed notice. They are easily distinguished by the rhomboidal form of their large and hard scales, which are disposed in regular rows, not overlapping one another as in the generality of fishes, but merely touching at their edges, and thus giving the whole body the appearance of being divided into so many regular compartments. Though, as already observed, they have no real abdominal fins, yet a few isolated spines are often found in the vicinity of the pelvis, which have been generally considered as representing these organs; and the greater number have the sides of the tail armed with one or more rows of strong spines curved forwards. The species, upwards of thirty in number, are enumerated in the notes to the second edition of the *Règne Animal*, vol. ii., p. 372, 373.

BALIZE, or BELIZE, the chief town of British Honduras, is situated at the southern mouth of the river of the same name, which divides the town into two parts, and is crossed by a substantial wooden bridge of 220 feet span, and 20 in width. The number of houses amounts to nearly 500; many of them are convenient, well built, spacious, and even elegant, constructed entirely of wood, and raised eight or ten feet from the ground, on pillars of mahogany. The town is immediately open to the sea, standing on a low flat shore, guarded by numerous keys, or small islands, which are densely covered with trees and shrubs, and so very similar as to render the navigation extremely difficult. The groups of lofty cocoa-nut trees, interspersed with the lively foliage of the tamarind, give a pleasing and picturesque appearance to the dwellings, independent of the agreeable shade they afford. The streets are regular and parallel, intersecting each other at right angles: there are a government house; a church, with a school, on the Madras system, attached to it, in which 133 boys and 91 girls are educated; an hospital, barracks, and other public buildings. Balize is attached to the see of Jamaica; there are also Wesleyan and Baptist establishments.

The word Balize is a corrupt spelling of Waliz, the name given to this spot by the Spaniards in consequence of the harbour and river having been discovered and much resorted to by a piratical Englishman named Wallice.

Besides several batteries, the town is defended by a regular fort, called Fort George, situated on a small islet at the entrance of the river, which has been principally formed of the ballast from shipping, every vessel being obliged to leave a portion; it is only 600 feet long, and 200 broad.

The first settlement of Balize is uncertain, as the early visiters were merely the mahogany and logwood cutters, whose residences were but temporary. The first establishment of the English in this quarter was made shortly after the treaty with Spain in 1667. The first settlers were adventurers from Jamaica, who fixed themselves at Cape Catoche, and gradually extended their location to Balize. Great hostility was shown to this settlement by the Spaniards residing in and about Campeachy, by whom expeditions were at different times fitted out with the object of driving away our countrymen. These attempts did not succeed, but on the contrary the English settlers and seamen on two occasions (in 1659 and 1678) attacked and took possession of the town of Campechy.

Our right to maintain a settlement in this place having been recognized by the crown of Spain, in a treaty concluded in July, 1670, the English establishments increased greatly, and in a very short time the residents (all free white persons) amounted to 1700 people.

In 1718 a Spanish force was collected at the head of the river Balize, with the object of dispossessing the British; but after remaining there inactive for a time sufficient to admit of reinforcements being sent from our provinces in North America, the Spaniards withdrew without striking a blow. In 1754 the desire of the Spaniards in this respect was, however, fully executed, and the English colony was broken up. At the restoration of peace between England and Spain, permission was given to form the settlement anew; and in April, 1763, the British logwood cutters returned to their former station. It was not till this re-occupation that their attention was directed to the cutting of mahogany, which at present forms almost the only branch of industry carried on by the settlers. In September, 1779, the English were again expelled, and their settlements destroyed; but the treaty of 1783 put them once more in possession, which, with the exception of an unsuccessful attack by the Spaniards in 1798, has since been undisturbed.

From the first formation of an English settlement in the

Bay of Honduras to the year 1741, the magistrates were elected by the inhabitants; but in the year just mentioned two commissions were appointed by George II. for the government of the colony. The chief authority in the settlement is at present held by a superintendent nominated by the crown. Seven magistrates are annually elected by the inhabitants to act as a council, at which the superintendent presides. The magistrates act gratuitously, and as they manage the public funds of the colony, they form a body of importance.

The neighbourhood of Balize abounds in lakes, and swamps quite overflowed during the rains. An extensive morass to the northward is now being drained. The intercourse with the interior by land is extremely difficult, and travelling is only conveniently performed by the river. The commerce of Balize is very confined, consisting almost exclusively in the exportation of mahogany and other woods; but within the last few years the interior has opened a new market for the consumption of articles of British manufacture. The climate is generally moist, but is considered healthy; the place is constantly refreshed by the sea-breeze (except for a few months) tempering the heat, which, however, is not excessive, as the thermometer seldom rises above 83° in the hottest time, and during the wet season sinks to 60°. The variation of temperature during the twenty-four hours is very great, frequently 25°. [See HONDURAS.]

The river Balize takes its rise in the mountains which bound the Honduras territory at the distance of about one hundred miles direct from the sea-shore. Its course is in an east-north-east direction, very tortuous: it discharges itself into the Bay of Honduras by two mouths, one, as already mentioned, at the town, the other about three miles and a half to the north-west: the latter is, however, not accessible. The falls in different parts of the river, and the scenery along the banks, are extremely grand. Eight or ten miles above the lakes at the back of the town, the rapids begin; and farther on is a rapid, a quarter of a mile in length, and with a considerable fall. Above that, the river winds its way, by a natural tunnel through a ridge of hills which crosses its course in singular and magnificent subterranean excavations. During the floods, the mouths of these caverns are filled with water, which boils up with prodigious fury.

Gold has been found in a branch of this river called Roaring Creek; and another branch, called Labouring Creek, is remarkable for the petrifying properties it possesses: its waters have a powerfully cathartic effect, and a healing property when applied to ulcers.

The population, in 1833, consisted of 3794 persons, independent of 743 soldiers and military pensioners. Of the first-mentioned number, 223 were whites, 1788 free coloured people, and 1783 slaves. In the same year the exports from the settlement consisted of 4,500,000 superficial feet of mahogany, 1800 tons logwood, 2200 serons of indigo, 1200 serons cochineal, and 730 bales of sarsaparilla root, besides some inconsiderable quantities of tortoise-shell, hides, cocoa-nuts, and balsam. About five-eighths of the whole were sent to this country, and employed 9000 tons of British shipping.

Maize, rice, yams, and plantains, are cultivated for the consumption of the inhabitants; and a considerable number of horned cattle are bred, and employed in the mahogany works.

Balize lies in 17° 29′ N. lat., 88° 8′ W. long.

BALKAN MOUNTAINS, or GREAT BALKAN, is a name which properly belongs to that range of mountains in Turkey in Europe, which, lying between the 42nd and 43rd parallel and the 23rd and 28th meridian, divides the plains on the Lower Danube from the rivers running southward to the Archipelago. But as in geography the name of a portion of a range is frequently used to indicate a larger mass, so this name also has been applied to its western continuation, and even to the whole mountain system, which covers with its ranges and branches the eastern peninsula of southern Europe. But this application is not generally admitted, and has nothing to recommend it.

The most considerable mountain-chain, and that which, by an extension of the term, may be called Balkan, runs from the Adriatic Gulf to the Black Sea, between the parallels of 42 and 43. It begins on the shores of the Adriatic Gulf with the rocky peninsula of Sabioncella, opposite the island of Curzola, and soon assumes an extremely wild and alpine character in the mountains of Czerna (pronounced Cherna), Gora, or Montenegro, which are inhabited by the Montenegrins. Proceeding farther east, between the provinces of Servia and Albania, it seems to increase in height, in the mountains of Perserim, which join the Shard Dagh, or Kara Dagh, the Mons Scardus of the antients. The highest part of the range lies still farther to the east, where it receives the names of Ghubolin, Argentaro, and Egrisu. Here it is supposed that some summits attain the point of eternal snow. To the west of the town of Sóphia, near the sources of the Isker, a tributary of the Danube, and those of the Struma (Strymon), is Mount Orbelus, 9000 feet above the sea, as it is conjectured, which is the highest known summit of the whole system. From Mount Orbelus the range declines to the south-east, and is called Dupinsha Dagh, but it resumes its eastern direction again at the sources of the Maritza (the Hebrus), and from this point, to its termination on the shores of the Black Sea, it is called Balkan, or Emineh Dagh; the latter name is derived from Cape Emineh, with which it terminates on the Black Sea. This portion of the range is considerably lower than that farther to the west, and it is thought that its mean height does not exceed 3000 or 4000 feet above the sea. It forms the Hæmus of the Greek geographers, probably so called from its cold and snowy climate.

This range, like the whole mountain-system, is distinguished by craggy summits and steep sides, which render travelling in many parts impossible, and everywhere very difficult. Most of the narrow roads, of which only a few are passed in carriages, are made in the dry beds of torrents, and the traveller runs the risk of being drowned in them, when they are suddenly filled by heavy rains. The most frequented, or rather the only passable roads over it, are six in number, which, from east to west, succeed one another in the following order. The road leading from Shumla, or Shumna in Bulgaria, to Aidos, or Haidos in Rum-ili, offers less difficulties than the others, as it traverses the lowest portion of the range, and is therefore the most frequented. By this road the Russian army passed the Balkan in 1829. The second, leading from Shumla to Karnabad, is much more difficult: it unites with the former to the south of Karnabad, and then passes through Wisa and leads directly to Constantinople. The third road unites Tirnava on the Yantra, a tributary of the Danube, with Selimnia or Selimno, a commercial town, situated on a branch of the Maritza in a narrow valley near the principal range, and is also much used. The fourth road begins, likewise, at Tirnava and terminates at Kasanlik, a commercial town situated on the Tundja, a tributary of the Maritza. Passing over a very elevated part of the range it presents numerous difficulties, and is the least frequented. The fifth road leads from Sóphia, on the Isker, to Tatar Basardshick, on the Maritza. It passes through the Kapuli Derbend (the Gate of the Gorge), which is exceedingly narrow, between steep mountains and deep abysses, and is thought to be the work of the Emperor Trajan. The last three roads lead to Adrianople, and hence to Constantinople. These five roads traverse the Proper Balkan. The higher portion of the range, farther to the west, is only traversed by one road, which leads from Piristina, or Pristina, in Servia, to Uskup, or Skopia, in Macedonia. It is only passable by mules and asses, but much frequented, being the only road by which the produce of Macedonia is carried to the north.

The Balkan is united to the mountains of Middle Europe by two ranges. The Dinaric Alps, which separate the Lowlands of Hungary from the Adriatic Gulf, join it to the mountain system of the Alps. This range has its name from the highest of its mountains, Mount Dinara, which rises to nearly 6000 feet, and is very steep on its western descent. It contains two great mountain masses, the Great Capella on the east of Zengh, and the Wellebit Mountains, south of the same town. The Great Capella joins the Julian Alps near Zengh. [See DALMATIA.]

By another range the Balkan is united to the Carpathians. This chain, which as yet has received no name, we shall call the Bulgarian Mountains. It detaches itself from the Balkan to the north of the sources of the Maritza, runs north-west, parallel to the Dupinsha Dagh, and terminates in numerous branches on the banks of the Danube, by which river it is separated from the Carpathians. The majestic Danube is here, for upwards of 60 miles between Golubacs and Kladowa, narrowed by the two chains of mountains

which extend along its course, and forms numerous rapids and whirlpools. At one place, called Deminkapi (the Iron Gate), it is only 400 feet broad.

The country between the Dinaric Alps and the Bulgarian Mountains, which comprehends the Turkish provinces of Bosnia and Servia, is a truly alpine region, presenting only high, steep mountains, and narrow, deep valleys. Its valleys in the southern districts run parallel to the Balkan chain, but in the northern they are transverse valleys. None of the numerous chains of this tract are remarkable except the Rudnick Mountains, which run along the river Morava on its western bank, from south to north, and have always served as a stronghold to the Servians in their wars with the Turks. The most remarkable rivers of this region are the Bosna, the Drina, and the Morava, all affluents of the Danube. The Morava may have a course of 200 miles, and drains an extensive country, more than one-half of this alpine region.

The country to the east of the Bulgarian Mountains, and extending between the Balkan and the Danube at an average breadth of fifty or sixty miles, is not mountainous, but only hilly, with many little plains between the hills. Near the Danube it is quite a plain. No considerable rivers traverse it, except the Isker (the Skios of Herodotus, iv., 49; and Oskios of Thucyd. ii., 96), whose source is between the Dupinsha Dagh and the Bulgarian Mountains, and which breaks through the latter range before it enters the hilly plain of Bulgaria (Herod. iv., 49).

Three extensive and continuous chains branch off from the southern side of the Balkan. The most eastern detaches itself from the principal range at a distance of rather more than a hundred miles from Cape Emineh, and running in a south-eastern direction, gradually approaches the shores of the Black Sea, where it forms the high and rocky coast to the south of the Bay of Burgas, and terminates with the rocky hills on the Straits of Constantinople. It bears the name of Strandshea Mountains, and, though not of great height, is difficult to pass, being very rocky. Near Wisa it is traversed by a road already described. The Tekir Dagh, or Tekiri Mountains, may be considered as a continuation of this chain. This range branches off from the Strandshea Dagh at a distance of about seventy miles west of Constantinople, and running in a south-western direction, and approaching very near the Sea of Marmora (Propontis), it divides into two branches, of which the northern terminates at Cape Paxi, north of the Bay of Saros, and the southern in the peninsula of Gallipoli (Chersonesus Thracia). This chain merely consists of hills.

The second great range issuing from the Balkan branches off at the sources of the Maritza, between 23° and 24° E. long., and runs likewise to the south-east: but before it reaches the shores of the Archipelago, it turns to the east, and in this direction, running nearly parallel to the sea-coast, it advances to the very banks of the Maritza, where it terminates opposite a branch of the Tekir Dagh. One of its lateral branches forms the Cape of Maronea. This chain rises to a considerable height, and is called Despoto Dagh: part of it is the Rhodope of the antients.

The tract of country which lies to the west of the Strandshea, and to the east of the Despoto Dagh, and has for its northern boundary the Balkan, and for its southern the Tekir Dagh, is a spacious close valley, and may, in this respect, be compared with Transsylvania and with Bohemia. Like these last named countries, it is traversed by numerous ranges of hills; between which ranges there are long and wide valleys and some extensive plains, rich in the productions of southern Europe. This country is drained by the Maritza (Hebrus) and its tributaries, among which the Tundja and the Arda are the largest. [See MARITZA.]

The most western of the three chains which branch off from the Balkan is by far the most extensive, and must be considered as a separate mountain system. It separates Albania from Macedonia and Thessalia, and its most southern branches extend through the northern part of Greece, terminating on the shores of the Gulf of Lepanto and at Cape Colonna (Sunium of the antients): not having a proper name, it may be distinguished by that of the Albanian and Macedonian range. [See MACEDONIA and GREECE.]

The country which extends between the Albanian-Macedonian Mountains and the Adriatic Sea from Cape Sabioncello to Capo Linguetta, comprehending Albania Proper, or the antient Illyricum, is the most mountainous country in Europe. The mountains, though probably none of their summits attain the line of eternal snow, are high, their ascent very steep, often perpendicular, and the valleys between them very narrow and winding. There are no plains; and the shores themselves are everywhere high and rocky. Those valleys which lie near the principal chain run parallel to it, as those in which the two principal branches of the Drin descend; but along the coast they are transverse, extending east and west. The principal rivers which drain this mountain region are the Drin, the Scombi, and the Volutza. [See ALBANIA.]

The extensive region which lies to the east of the great chain of the Albanian-Macedonian range and to the north of the Volutza Mountains (the latter of which extend from this range eastward, in about 40° lat., and terminate with Mount Olympus), extending to the Despoto Dagh and the great chain of the Balkan, comprehends the antient Macedonia and great part of Thrace, and is only mountainous near the great ranges which enclose it. The other parts, though extremely uneven, rise only into hills, with the exception of Kastagnatz Dagh or Mount Pangaius, which traverses nearly the middle of the country, and terminates on the peninsula called by the Greeks Chalcidice: Mount Athos may be considered as the south-eastern extremity of this chain.

The natural riches of this extensive mountain system are very imperfectly known. The silver and gold mines worked by the antients are not now known. Yet, in some parts, mines of this description are worked, as at Kostendil or Giustendil, not far from the sources of the Karasu Struma, in the Egrisu Dagh. In the same range, farther to the west, are considerable mines of copper, which are also found in the Emineh Dagh, near Shumla, and probably in other places. Iron seems also to be abundant, and is got from the Dupinsha Dagh, near the place which has given to this range its name. In many parts there are mines of lead, and in others rock-salt in great abundance. Marble is abundant in the southern ranges.

BALKH, a town in the kingdom of Bokhara, about twenty-five miles south of the Oxus, and 1800 feet above the sea; the town stands on a gentle declivity, sloping towards the river. The remains of its former magnificence cover a space of about twenty miles in circuit. They consist of fallen mosques and decayed tombs, which have been built of sun-dried bricks: there are no ruins prior to the age of Mohammedanism.

By the inhabitants of the surrounding countries, Balkh is called 'Mother of Cities,' and is said to have been built by Kyamoors, the founder of the Persian monarchy. After the conquest of Alexander the Great, it flourished under the name of Zariaspa or Bactra (Strabo, p. 516), with a dynasty of Grecian kings. In the third century of the Christian æra, Artaxerxes the Persian had his authority acknowledged in a great assembly held at Balkh. It continued subject to the Persian empire, and the residence of the head of the Magi, till the followers of Zoroaster were overthrown by the conquests of the Caliphs. Its inhabitants were butchered in cold blood by Jenghis Khan; Timur, who took Balkh, attached it to his empire. (Cherefeddin Ali, by P. de la Croix, chap. i., p. 26.) It formed the government of Aurungzebe in his youth, and was at last invaded by the great Nadir. On the establishment of the Doorance monarchy, after his death, it fell into the hands of the Afghans; and within the last ten years has been seized by the king of Bokhara, whose deputy now governs it. The present population does not amount to 2000 souls, who are chiefly natives of Caubul, and the remnant of the Kara noukur, a description of militia established here by the Afghans: there are also a few Arabs. The Koondooz chief, who possessed the city prior to its falling into the hands of the Bokharees, marched off a great portion of its population; and by still threatening an attack on it, has caused most of those left behind to fly to the neighbouring villages.

The circuit of Balkh appears to have contained numerous gardens, which increased its size without adding to its population; and from the frail material of which the buildings are constructed, it does not appear that it ever was a substantial city. There are three large colleges of handsome structure, now in a state of decay. A mud wall surrounds the present town; outside of which are ruins on every side, to the extent of about two miles. The citadel or *ark*, on the northern side, has been constructed in a more solid style, yet

it is a place of no strength. There is a stone of white marble in it which is pointed out as the throne of Kyamoors, or Cyrus.

The river of Balkh, Adirsiah or Dehas (the antient Bactrus), which gave name to the city and province, rises in the mountains of the Hindoo Koosh, and enters the plain of Toorkistan about six miles south of Balkh. According to Quintus Curtius (vii. 4) it formerly washed the walls of the town, or, according to Strabo, ran through it; but this is not the case at present; for at the point where it leaves the mountains it is distributed with great labour over the whole district by numerous canals (said to be eighteen in number), and conducted to the city, and also to Mazar and Akhchu on each side of it. Akhchu is about fifty miles from Balkh, but none of the other canals extend so far, though the waters of some trickle half way down to the Oxus, and afford a supply of water to the roving Toorkmans. The gentle slope of the land towards the Oxus affords great facilities for irrigating the country, the soil of which is rich and productive, and will account for the great population and vast fertility that once existed in this province. Many of the canals are scarcely now discoverable, being nearly choked up. They frequently overflow and leave marshes, which may account for the unhealthiness of the country: intermittent fevers and rheumatism are very prevalent. In June the thermometer did not rise above 80°. Wheat ripens in that month, and the stalks grow as high as in England. The fruit of Balkh is most luscious, particularly the apricots, which are nearly as large as apples; a shilling will purchase a thousand, and with iced water they are great luxuries, though dangerous ones. Snow is brought in quantities from the mountains south of Balkh. Persian coins, as well as those of the emperors of Hindustan, are found among the ruins; and it is remarkable, that in the countries north of the Hindoo Koosh, the current coinage of the present time is that of the emperors of Delhi, who ruled prior to the age of Nadir. The trees, fruit, and corn of Balkh have a great celebrity; and its horses are equally famed. Balkh yields no revenue to the crown of Bokhara; the scanty returns from it, amounting to about 13,000*l.*, are granted to the chief who protects it.

Balkh is in 36° 48′ N. lat., and 67° 18′ E. long.

(Burnes's *Travels into Bokhara, &c.*)

BALLAD, in poetry, a popular song or roundelay, generally sung in the streets. Bishop Percy says, the English word ballad is evidently from the French *balade*, as the latter is from the Italian *ballata;* which the Crusca dictionary defines 'Canzone che si canta ballando,' a song which is sung during a dance. But he adds that the word appears to have had an earlier origin: for in the decline of the Roman empire, these trivial songs were called *ballistea* and *saltationes*. 'Ballisteum,' Salmasius says, 'is properly *ballistium*, Gr. βαλλιστεῖον, ἀπὸ τοῦ βαλλίζω. . . . . βαλλιστια *saltatio*. . . . . . *Ballistium* igitur est quod vulgo vocamus *ballet*, nam inde deducta vox nostra.' (Percy, *Rel. of Anc. Eng. Poet.* 8vo., 1794, vol. i., p. xcviii. Salmas. *Not. in Hist. Aug. Script.* vi., p. 439.)

Ballads and rude poetry have been, in all countries, the earliest memorials of public transactions; and in the savage state of each were invariably used to rouse and perpetuate a martial spirit. Tacitus tells us that Arminius, long after his death, was remembered in the rude songs of his country (*Annal.* ii. 88); and the same writer informs us that ballads were the only annals known among the antient Germans. They have a tradition, he adds, that Hercules visited those parts, and they sing his praises, when rushing to battle, in preference to all other heroes. (*De Morib. Germ.*, sect. ii. iii.) Saxo Grammaticus, speaking of the Northern writers of a somewhat later period than this, says they drew the materials of their history from Runic songs. The Scandinavians had their Scalds, whose business it was to compose ballads, in which they also celebrated the warlike achievements of their ancestors. Similar panegyrists of warrior-merit existed in Gaul, Britain, Wales, and Ireland; and it must not be forgotten that when Edward I. formed the plan of reducing Wales to subjection, he thought it necessary to destroy the bards. Their compositions, however, survived; and a writer as late as Queen Elizabeth's time, describing North Wales, says, 'Upon the Sundays and holidays the multitude of all sorts of men, women, and children of every parish do use to meet in sundry places, either on some hill or on the side of some mountain, where their harpers and crowthers sing them songs of the doings of their ancestors.' (Ellis's *Orig. Lett. of Eng. Hist.*, 2nd ser., vol. iii., p. 49.) Even in the New World, the American savages had their war-songs and rude poetry, in which they sung the praises of those who had fought and died for their country. Garcilasso de la Vega says, that in writing his history of Peru he availed himself of old songs and ballads, which a princess of the race of their Incas taught him to get by heart in his infancy.

In process of time, as manners refined, the ballad in every country by degrees included a wider range of subjects: it was no longer solely employed in rehearsing valorous deeds, but included in its rhymes the marvellous tale or the wild adventure, occasionally becoming the vehicle of sentiment and passion; and no festivity was esteemed complete among our ancestors in the eleventh, twelfth, and thirteenth centuries, which was not set off with the exercise of the minstrel's talents, who usually sang his ballad to his own or some other harp, and was every where received with respect.

As intellectual gratification advanced, however, these rude performances gradually lost their attraction with the superior ranks in society.

'When language became refined,' says Dr. Aikin, 'and poetical taste elevated by an acquaintance with the Greek and Latin authors, the subjects of the epic muse were no longer drest in the homely garb of the popular ballad, but assumed the borrowed ornament and stately air of heroic poetry, and every poetical attempt in the sublime and beautiful cast was an imitation of the classic models. The native poetry of the country was reserved merely for the humorous and burlesque, and the term ballad was brought, by custom, to signify a comic story, told in low familiar language, and accompanied by a droll trivial tune. It was much used by the wits of the time as a vehicle for laughable ridicule and mirthful satire; and a great variety of the most pleasing specimens of this kind of writing is to be found in the witty era of English genius, which I take to be comprehended between the beginning of Charles II.'s reign and the times of Swift and Prior. Since that period, the genius of the age has chiefly been characterized by the correct, elegant, and tender; and a real or affected taste for beautiful simplicity has almost universally prevailed.' (*Essays on Song Writing.* 8vo. London, 1770.)

In the further progress of literary taste, these compositions came to be considered as objects of curiosity, on account of the insight they afforded into the manners and modes of thinking of remote times; while the strokes of nature with which they abounded, and the artless simplicity and strength of their language excited the admiration of liberal critics. When, therefore, they had long ceased to be current in popular song or recitation, they were carefully collected by poetical antiquaries, and elucidated by historical notes; and thus a secondary importance was attached to them scarcely inferior to that which they possessed when chanted to the harp of the minstrel. (See Aikin's *Essay prefixed to his Vocal poetry.* 8vo. London, 1810.)

Among numerous other collections of our own national ballads, Percy's *Reliques*, Evans's *Old Ballads, Historical and Narrative*, and Ritson's *Antient Songs from the time of Henry III.*, stand conspicuous. Pinkerton, Jamieson, and Finlay have collected the *Scottish Ballads;* and Sir Walter Scott the particular *Minstrelsy of the Scottish Border.* Of those of other countries we cannot omit the Spanish ballads so frequently quoted by Percy from *Hist. de las Civiles Guerras de Granada*, Madr., 1694; and the *Colleccion de Poesias Castellanas anteriores al Siglo XV.*, by D. Tomas Antonio Sanchez, 3 vols. 8vo., Madr., 1779; among the Italians the *Canti Carnascialeschi* of the time of Lorenzo de' Medici, 8vo., 1559; and among the antient ballads of the North, the *Altdänische Heldenlieder, Balladen und Märchen*, übersetzt von Wilhelm Carl Grimm, 8vo., Heidelb., 1811. St. Cæsari and the monks of Hieres collected the remains and biographies of the minstrels of Provence; and the canon Manesse those of the Swabian poets.

Ritson says the number of our own antient printed songs and ballads which have perished must be considerable. Very few exist of an earlier date than the reign of James, or even of Charles I. Being printed only on single sheets, which would fall chiefly into the hands of the vulgar, who had no better method of preserving their favourite compositions than by pasting them upon the wall, their destruction is easily accounted for. The practice of collecting them into

books did not take place till after Queen Elizabeth's time, and is probably owing to Johnson and Delaney (great ballad-mongers), who when they were advanced in years, and incapable, perhaps, of producing anything of merit, seem to have contented themselves with collecting their more juvenile or happier compositions into little penny books, entitled *Garlands*; of these, being popular, and often reprinted, many are still extant, particularly in the Pepysian library. (*Diss. on Ant. Songs and Music*, p. lxxii.)

The earliest ballad now remaining in the English language is believed to be a 'Cuckow Song' of the latter part of the reign of Henry III. The song will speak for itself.

Sumer is icumen in,
Lhudè sing cuccu;
Groweth sed and bloweth med
And springth the wdè nu.
Sing cuccu.
Awe beteth after lamb,
Lhouth after calvè cu,
Bulluc sterteth,
Buckè verteth,
Murie sing cuccu;
Cuccu, cuccu;
Wel singes thu cuccu,
Ne swik thu naver nu.

i. e. Summer is come in; loud sings the cuckoo; now the seed grows, and the mead blows (*i.e.* is in flower), and the wood springs. The ewe bleats after the lamb; the calf lows after the cow; the bullock starts, the buck verts (*i.e.* goes to harbour in the fern); merrily sings the cuckoo. Well singest thou, cuckoo. Mayest thou never cease. (See Ritson's *Hist. Essay on National Song*, pref. to his *Select Coll. of Eng. Songs*, 8vo. London, 1783, vol. i. p. xlvii.

The earliest specimen of Scottish song, after the Scots spoke the English language, is preserved in the *Rhyming Chronicle* of Andrew Wyntown, prior of Lochleven, written, as is generally supposed, about the year 1420, in which he relates the song which was made on Alexander III. who was killed by a fall from his horse in 1286. Ritson has given it in the *Hist. Essay* pref. to his *Scottish Songs*, vol. i., p. xxiv. (See ALEXANDER III., vol. i., p. 306.)

The earliest English song, separately printed upon a single sheet, is believed to be one upon the downfall of Thomas Lord Cromwell, A.D. 1540.

An ingenious Frenchman, M. Meusnier de Querlon, projected writing the history of his country by a chronological series of songs and ballads.

The effect of the ballad in raising the passions has been known, and felt even in late times. The 'Marseillois Hymn,' and Burns's song of 'Scots wha hae wi' Wallace bled,' are sufficient proofs of this. Andrew Fletcher, of Saltoun, speaks of a wise person whom he knew, 'who believed that if a man were permitted to make all the *ballads*, he need not care who should make the laws of a nation.' (*Polit. Works*, 8vo. p. 266. Glasg. 1749.)

BALLAD, in music, a short air, repeated to two or more stanzas, simple in construction, therefore confined in modulation, and having an accompaniment of a strictly subordinate kind. When an air, or its accompaniment, is florid, or modulates into unrelated keys,—when, in short, either assumes a more elaborate form, the composition generally takes the name of song, or canzonet, even when several stanzas are repeated to the same melody. [See SONG, and CANZONET.]

BALLAST (Danish, *Baglast*; German, Dutch, and Swedish, *Ballast*; French, *Lest*; Italian, *Savorrā*; Spanish, *Lastre*; Portuguese, *Lastro*; Russian, *Balast*), a term used to denote any heavy material placed in a ship's hold with the object of sinking her deeper in the water, and of thereby rendering her capable of carrying sail without danger of being overset. Ships are said to be in ballast when they sail without a cargo, having on board only the stores and other articles requisite for the use of the vessel and crew, as well as of any passengers who may be proceeding with her upon the voyage. In favour of vessels thus circumstanced it is usual to dispense with many formalities at the custom-houses of the ports of departure and entry, and to remit the payment of certain dues and port charges which are levied upon ships having cargoes on board.

By a recent regulation, a foreign vessel proceeding from a British port may take on board chalk as ballast; and shall not be considered as other than a ship in ballast in consequence of her having on board a small quantity of goods of British manufacture for the private use of the master and crew, and not by way of merchandise, but such goods must not exceed in value 20*l.* for the master, 10*l.* for the mate, and 5*l.* for each of the crew.

Regulations have at various times been made in different ports and countries determining the modes in which ships may be supplied with ballast, and in what manner they may discharge the same; such regulations being necessary to prevent injury to harbours. It has likewise been sometimes attempted to convert the supply of materials for ballast into a monopoly. In vol. xx. of Rymer's *Fœdera*, p. 93, of the year 1636, we find a proclamation by King Charles I., ordering 'that none shall buy any ballast out of the river Thames but a person appointed by him for that purpose,' and this appointment was sold for the king's profit. Since that time, the soil of the river Thames from London Bridge to the sea has been vested in the corporation of the Trinity House, and a fine of 10*l.* may be recovered from any person for every ton of ballast which he may take out of the river, within those limits, without the authority of that corporation. Ships may take on board 'land ballast' from any quarries or pits east of Woolwich, upon paying one penny per ton to the Trinity House. For river ballast, the corporation are authorised by Act of Parliament (3 Geo. IV. c. iii.) to charge according to the following rates:—

For every ton (20 cwt.) of ballast, not being washed ballast, carried to any ship or vessel employed in the coal trade, the sum of 1*s.*

For every such ton, carried to any other British ship or vessel, the sum of 1*s.* 3*d.*

For every such ton, carried to any foreign ship or vessel, the sum of 1*s.* 7*d.*

For every ton of washed ballast, double the above rates are chargeable, in each case respectively.

Further sums are chargeable:—For every ton delivered in, or unladen from, the inward East or West India Dock, 10*d.*; if in or from the outward East or West India Dock, the London Dock, the Commercial Dock, the East Country Dock, the City Canal, the Surry Canal, or the Regent's Canal, 4*d.*

The receipts of the Trinity Corporation from this source, in 1832, were 25,000*l.*, and their expenses 23,000*l.*, but this revenue is necessarily fluctuating. In the preceding year (1831) it produced, after payment of all charges, 6498*l.* 1*s.* 10*d.*

The ballast of all ships or vessels coming into the Thames must be unladen into a lighter, and if any ballast be thrown into the river, the master of the vessel whence it is thrown is liable to a fine of 20*l.* Some regulation similar to this is usually enforced in every port.

Some art is required in properly ballasting a ship. The quantity required by different vessels of the same tonnage varies according to their shape or build. If any great quantity of heavy ballast, such as lead or iron, is deposited in the bottom of the hold, the centre of gravity will be placed so low that the vessel will labour and roll violently in the sea, and in bad weather will be in danger of being dismasted: it will besides impair her sailing qualities. A ship thus ballasted is said to be too stiff. On the contrary, when a ship has too little ballast, or this is so disposed as to raise the centre of gravity too high, equal danger will arise: she is then said to be too crank. The art of properly ballasting ships consists in placing the centre of gravity so as to be neither too high nor too low, and as this will in a great measure depend upon the shape of the vessel, it is not possible to give any particular directions concerning it, but the task should be confided to experienced hands.

Ships that take on board cargoes of light goods require also some portion of ballast, in order to lower them sufficiently in the water, and by adjusting the centre of gravity to enable them to carry with safety the necessary press of sail.

(Hume's *Laws of the Customs*; *Report of Committee of House of Lords on Lights and Harbour Dues*; Mortimer's *Dictionary*; M'Culloch's *Dictionary*.)

BALLAST-OFFICE CORPORATION, DUBLIN, or, more correctly, the Corporation for Preserving and Improving the Port of Dublin. This Board was created, in 1786, by the Act 26 Geo. III. c. 19 of the Irish parliament, and consists of twenty-three members, viz.: 'The lord mayor and sheriffs, for the time being, of the city of Dublin, three aldermen, chosen by the Board of Aldermen from their own body, and seventeen members who were appointed, in the

first instance, by the Act of Incorporation, and who are, on all future vacancies, empowered to elect new members, but leaving the city members as members of the Board.' Among the seventeen members of the Board are two peers; the remainder are principally merchants of Dublin.

This self-elected body is endowed with extensive powers to enable it to carry on the works and to improve the port of Dublin; besides which, it has an exclusive right, similar to that exercised by the Corporation of the Trinity House in London, of supplying with ballast all vessels sailing from the port of Dublin. In 1810 the management of all the light-houses on the coast of Ireland was transferred from the Commissioners of Customs to the Ballast Office Corporation in Dublin, which, however, exercises this part of its duty subject to the control and direction of the elder brethren of the Trinity House in London. The examination and licensing of pilots for the port of Dublin is also performed, according to the provisions of the before-mentioned act of parliament, under the direction of the Ballast Office Corporation.

The Board is empowered to demand and receive 1s per ton from all foreign vessels, 6d per ton from national vessels employed in foreign trade, and 5d per ton from all coasting vessels and colliers, which enter the harbour of Dublin, towards defraying the expense of preserving and improving the port. Power is likewise given to charge to British vessels 1s per ton, and to foreign vessels 1s 4d per ton, for all the ballast supplied. The Board likewise collects the light dues from all vessels sailing to or from ports in Ireland. The revenue from this source amounted in 1833 to 45,028*l.* 3s 4d.

The Ballast Board has greatly improved the port of Dublin, by rebuilding the walls of the river Liffey, and by deepening its channel. In the beginning of 1834 a very extensive work of the latter kind was undertaken, in the execution of which powerful steam machinery is employed. Since 1820 the Board has expended, for the erection of light-houses and the building of floating lights, the sum of 183,270*l.*, which has been defrayed out of the surplus dues, as there is no debt owing by the Board for light houses. There are now thirty-five lights supported by the Ballast-Board, three of which are floating lights. Vessels engaged in foreign trade, or on what are called over-sea voyages, pay towards the expense of these lights one farthing per ton for each light-house passed: the same charge is made on coasting-vessels when loaded, but if proceeding in ballast, only one-half the rate is demanded from the latter class of vessels.

BALLET, a theatrical representation, in which a story is told by gesture accompanied by characteristic or illustrative music, and to which dancing (as mere saltation), scenery, decorations, &c., are the accessories.

We are indebted for the word, and even for its pronunciation, to the French, who had it from the Italian, *ballare*, to dance, the latter having been derived from *βαλλίζειν*, which has the same meaning.

The French enumerate three kinds of *ballet*, namely, the *ballet d'action*, or *ballet pantomime*; the *opera ballet*, and the *comédie ballet*. The two last are not now in use: the first is that above described, and the only true ballet; for those which consist of little else than steps, leaps, *pirouettes*, and *entrechats*, are unworthy of the name, and, in fact, are *divertissemens*; in which, as Rousseau remarks, there is no subject, no connexion, and the best performers tell you nothing, but that they dance well. These, however, under the name of ballet, are what are now most commonly produced at the King's Theatre, where distortion of the person and unnatural action being more applauded than expression and true gracefulness, have almost superseded both.

'A ballet,' says M. Noverre, who by Garrick was called *The Shakspeare of Dance*, 'perfect in all its parts, is a picture, drawn from life, of the manners, dresses, ceremonies, and customs of all nations: it must, therefore, be a complete pantomime, and through the eyes speak to the very soul of the spectator; and being a regular representation, ought, as far as is possible, to be under the general rules of the drama. If it does not point out with perspicuity, and without the aid of a program, the passions and incidents it is intended to describe, it is a divertissement, a succession of dances, and nothing better.' (*Lettres sur la Danse.*)

Appropriate music is a constituent part of a good ballet; it supplies the language which action alone cannot speak, and is grave or lively, energetic or tender, according to the passion or sentiment meant to be pourtrayed on the stage. By its rhythm it also regulates the motion of the dancer (for all the performers in the ballet are indiscriminately called *dancers*), whose every action and step ought to be more or less measured. Aristotle, in his *Poetics* (cap. in.), goes so far as to say, that there are dancers who by rhythm applied to gesture express manners, passions, and actions. A composer of good ballet-music is carefully attentive to locality and to nationality. Almost every civilized nation has, in addition to a general style of melody, a style peculiarly its own: and by a judicious adoption of this, an incalculable addition is made to the interest and the reality of the scene, through the powerful medium of association. Gluck did not hesitate to introduce, in his *Iphigénie en Tauride*, the real air of a cannibal nation, to which he made certain barbarians dance. The occasional and cautious use, too, of melodies which recall to mind any thing, whether in the shape of narrative or sentiment, analogous to what is representing on the stage, is practically found to heighten the effect of the action. But in having recourse to such means great judgment must be shown, for if the composer be not sensible and experienced, he runs considerable danger of exciting ideas very foreign to those which he intended to raise.

To the antients, what we call the *pantomime ballet* was well known. The Rev. Robert Nares, author of *Remarks on the Ballet of Cupid and Psyche*, written when he was young, and before he had arrived at those dignities in the church to which his great learning and high character entitled him, says, speaking of what he calls the dance, meaning the mimetic part of it, 'Being in its origin used in the service of religion, it thereby acquired a dignity which in modern times it never possessed. The most sacred mysteries of heathenism were thus accompanied. Apollo, in a passage of Pindar, is called the *Dancer* (ορχηστης), and there is a Greek line extant which represents Jupiter himself in the very act of dancing. Even at Rome, where the dance was on the whole much less respected, the priests of Mars, to whom the care of the sacred *ancilia* was committed, were, from their customary and solemn dances, denominated *Salii* (from *salio*). Of the imitative dance both Plato and Xenophon, in the person of their master, Socrates, speak very favourably, and Aristotle ranks it with the art of poetry. Plutarch, in the last book of *Symposiac Questions*, considered it worthy of distinct discussion. And Lucian, an author certainly not deficient in genius or sagacity, has left an express eulogium, in which he scruples not to prefer the *orchestic* to the speaking drama.' "The Greeks," says Athenæus, "had brought their dance to such perfection, in the art of imitating the passions, that the most eminent sculptors thought their time not ill employed in studying and designing the attitudes of the public dancers. And to this study (he adds) they owed, undoubtedly, some of the transcendent beauties of their works."

M. Noverre, between forty and fifty years ago, operated a great change in the ballet, and restored it to nearly the dignity, considered as a public amusement, which it supported among the antients. His *Medée*, his *Deserteur*, and his *Psyche*, are still spoken of with enthusiasm by the few who remember them. The influence of these works lasted many years; but at length fashion, almost always opposed to good sense and good taste, would view with favouring eyes nothing but that which passes under the name of dancing; and what ought to be the ballet, is now, with occasionally an exception, reduced to a divertissement in which even good grouping is generally neglected; and vaulting, spinning, and distortion of limb threatening dislocation, are the only exhibitions that gain any applause, and consequently the only attainments to which a performer's labours are directed.

BALLINASLOE, a town in the county of Galway, in Ireland, on the west side of the river Suck, a tributary to the Shannon. Though a small place, Ballinasloe is one of the most prosperous towns in the county. (Dr. Beaufort's *Memoir of Ireland.*) It is celebrated for its great wool fair, which is held on the 13th of July. This fair was established by Mr. Trench, in the year 1757, and the town is now the property of his grandson, Viscount Dunlo. In consequence of the great convenience of its situation, being in the centre of the wool country, and the efforts made by Mr. Trench and his successors to afford every

accommodation to those who frequented it, Ballinasloe eventually became a place of greater resort and more extensive business than the fair of Mullingar. For some time past the number of bags of wool, each weighing eight cwt., brought to this market, has averaged from 1400 to 1800; but it is calculated that four or five times this quantity is sold there without being brought to the fair at all.

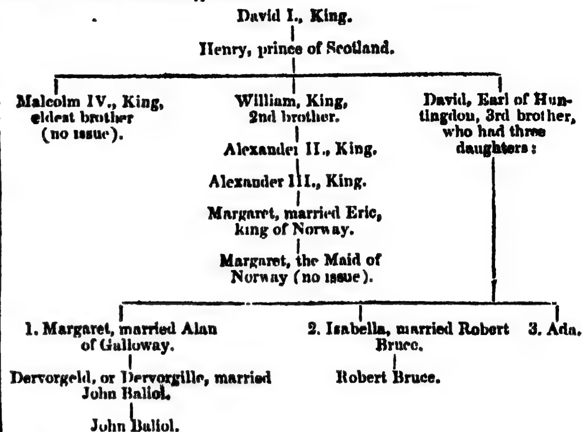
Ballinasloe has also a large cattle market, which is held in October; it begins on the 5th and ends on the 9th. At the commencement of the present century the number of oxen annually sold at this fair was 10,000, and of sheep 100,000. Owing, however, to the increased cultivation of the soil and other causes, the number of sheep brought to Ballinasloe market is supposed to have diminished of late years. The cattle tolls bring 600*l.* a year. Ballinasloe is a handsome town. It has two breweries, and a barracks for cavalry and infantry. There are several public schools, two of which are supported by voluntary contributions. A canal was formed a few years ago, which makes a communication between the town and the river Shannon. It is sixteen miles in length, and drains nearly 12,000 acres of bog. This canal was opened for the purposes of commerce in 1828. Ballinasloe is eighty miles west from Dublin in a straight line: by the road the distance is ninety miles. The population, in 1831, was 4140: in 1821 it was only 1811. (Camden's *Britannia;* Dr. Beaufort's *Memoir of a Map of Ireland;* Young's *Tour in Ireland,* vol. i.; Seward's *Topographia Hibernica;* Carlisle's *Topographical Dictionary; Parliamentary Papers,* &c.)

BALLIOL, or BALIOL, JOHN, the successful competitor with Bruce for the crown of Scotland, was descended from an antient Anglo-Norman family that held large possessions in England, Normandy, and Scotland. He was the only son of John Baliol, lord of Galloway, and was born about the year 1259. In 1290 he first becomes an object of historical notice, as one of the claimants to the then vacant Scottish throne; claiming in right of his grandmother, the eldest co-heiress of the only son of David I., king of Scotland, that had issue living. A short explanation of the circumstance under which the Scottish throne became vacant will make the validity of Baliol's claim evident.

The late king of Scotland, Alexander III., was married to the daughter of Henry III. (father of Edward I.), then king of England. In 1281 Alexander gave his only daughter Margaret (who bore her mother's name) in marriage to Eric, the youthful sovereign of Norway; and, by the sixteenth article of the treaty of marriage, it was stipulated that the issue should succeed to the throne of Scotland in the event of failure in the male line. This failure shortly after took place by the death, in 1284, of Alexander's only surviving son without issue; by which circumstance, the only child of Eric and the Scottish princess, a daughter also called Margaret, and known in Scottish history and antient ballads by the appellation of the 'Maid of Norway,' became heir presumptive to the throne of Scotland. By the death of Alexander himself two years after by a fall from his horse, the Maiden of Norway became rightful queen of Scotland. She was at this time but three years old, and a council of regency was appointed to execute the duties of the sovereign.

Edward I., the ablest and most ambitious monarch of that age, had long regarded Scotland with the eyes of a feudal superior, and only waited an opportunity to assert his claim. Such an opportunity now presented itself. He was the nearest male relative on the mother's side of the infant princess, who was his grand-niece: and Eric, naturally anxious for the interest of his daughter, solicited in her favour the protection of the king of England. Edward having already formed the design of uniting Scotland to the English throne, by marrying the royal heiress to his eldest son, the prince of Wales, promptly interfered and commanded obedience to the government of the regents. Every thing went on prosperously in favour of this great object of his ambition. He managed it so adroitly, that the first official proposal for the marriage emanated from the Scottish parliament; the consent of the infant's father was soon obtained; the pope granted the necessary dispensation, and a treaty of marriage was agreed to, which nominally secured the liberties and independence, but in reality left the claim to feudal superiority, precisely as it stood before the marriage was projected. But all these flattering hopes were suddenly destroyed by the untimely death of the young queen in 1290, which opened a new scene of strife and calamity to Scotland.

By the death of the Maid of Norway, the posterity of the three last kings of Scotland became extinct, and the throne became the possession of the next in kin or law. Thirteen candidates presented themselves, each asserting the claims of birth and consanguinity; but the pretensions of the majority were so utterly groundless, that the contest was soon reduced to two competitors, John Baliol, lord of Galloway, and Robert Bruce, lord of Annandale. The claims, relative and direct, of these two noblemen will be seen in the following table:—



This table shows that Baliol was the grandson of the eldest daughter; Bruce the son of the second daughter: the point at issue therefore was, whether the crown belonged of right to the representative of the eldest daughter, though more remote by one degree, or to the representative of the second, who was nearer by one degree,—that is, in fact, whether the crown descended in the order of birth, according to the modern system of primogeniture, or was hereditary in the order of proximity of blood. At the present day, the question would not admit of any dispute; but in the unsettled jurisprudence of a barbarous age and country, the claims appeared to be so equally balanced, that a decision in favour of Bruce would by no means warrant the imputation of deliberate injustice. The claim of Edward III. to the throne of France, and of Ferdinand of Castile to the sovereignty of Aragon, jar much more violently with our modern principles of inheritance. The estates of Scotland were either afraid or unwilling to decide between the competitors, and alarmed at the prospect of civil war, very prudently determined to refer the decision of the controversy to one who was able to enforce it—namely, the king of England.

It does not belong to our present purpose to detail the proceedings by means of which Edward I. made this office of arbiter instrumental in imposing the chains of feudal subjection upon Scotland. It is sufficient for the present to state that, though Edward delighted in war, and considered the enlargement of his dominions as the great business of a sovereign, he was extremely partial to the formalities —the letter, if not the spirit—of judicial proceedings. Though there can be no doubt that he employed his alleged feudal superiority as a mere means towards subjugating Scotland, he laboured to invest the proceedings with the garb of judicial deliberation and free agency. The declaration which he compelled the estates of Scotland to subscribe of their acts (by which his claim as lord paramount of his vassal kingdom of Scotland was acknowledged without qualification) being wholly uninfluenced by fear or force—a declaration which bears the stamp of falsehood on the face of it—is a striking instance of his respect for the forms and external observance of justice.

After a tedious inquiry of nearly two years' duration, the delegates to whom the English king referred the consideration, as a point of the law of inheritance, of the claims of the several competitors to the vacant throne, made their report unanimously in favour of the heir of the eldest daughter, that is, in favour of primogeniture; and accordingly Edward gave judgment, not as arbiter, but as feudal superior, that John Baliol, as the heir of the eldest daughter, should receive and have seisin of the kingdom of Scotland and all its appurtenances. This occurred on the 19th of November, 1292.

Next day Baliol swore fealty to the king of England in these words—'Hear you this, my lord Edward, king of England, and sovereign lord of the realm of Scotland, that I, John Baliol, king of Scotland, do fealty to you for the realm of Scotland, which I hold and claim to hold of you; that I will be faithful and loyal to you, and faith and loyalty will bear you of life and limb and worldly honour against all men that may live and die; and loyally I will acknowledge and loyally perform the services that are due to you for the aforesaid kingdom of Scotland, so help me God, and these holy gospels.' The new king was crowned at Scone on the 30th November, and again went through the ignominious ceremony of vassalage within less than a month after at Newcastle. It is but right to add that the estates of Scotland and the other competitors, with Bruce (the namesake and grandfather of the hero of Bannockburn) at their head, had, in the first stage of the inquiry, fully acknowledged Edward's claim as lord paramount; so that Baliol's oath of fealty after the decision in his favour was only in keeping with the whole proceedings. In point of fact, Edward interfered solely with a view to asserting his feudal supremacy, and would have asserted it by force if necessary. For this he has been fiercely denounced by the Scottish historians; but in truth with more patriotic zeal than soundness of reasoning. The claim of the king of England's feudal superiority over Scotland was of long standing, frequently acknowledged, and though constantly evaded, very seldom openly denied; the assertion or evasion being wholly an affair of temporary expediency, depending on the personal influence and courage of the king, and the internal condition of either kingdom for the time.

Edward's object in causing the ceremony of homage to be repeated was soon seen. A number of petty indignities soon taught the new vassal king of Scotland that his lord paramount only waited a pretext to seize the fief into his own hands. To his subjects he dared not look for the means of throwing off the yoke of feudal subjection thus ignominiously imposed upon him; for the mass of the Scottish people were indignant at the humiliating position to which the sordid ambition of the competitors for the crown had reduced their country. Appeals from the decisions of the Scottish king to his superior lord were encouraged. Every suitor in the courts of Baliol who was dissatisfied with his judgment, found in Edward a willing hearer; and within the first year of his reign he was served with no less than four citations to prove the legality of his decisions in the courts of the lord paramount. It was in vain that Baliol reminded the English monarch that he had distinctly covenanted on oath at Bingham, that no Scottish subject should be called into an English court to answer for acts done in Scotland. Edward haughtily replied, that the conditions of the treaty at Bingham applied solely to his son's projected marriage with the Scottish princess, and that it was his duty to administer even-handed justice to the lowest as well as the highest of his vassals. Baliol was timid and weak but not mean in spirit. These indignities bitterly mortified him, and he could not bear the reproaches of his people. He was summoned to answer the complaint of the Earl of Fife before the king of England. He attended, but maintained that he was not bound to answer the appellant; that it was a matter which regarded the rights of the crown; and that he dared not answer without the advice of the good men of his realm. He was reminded of his oath of fealty, but told that he might have time to consult his council. He replied that he would not ask for either time or adjournment. Judgment for contempt and disobedience to the authority of his feudal superior was formally given against him by the English court, which he, however, continued to ward off by requesting permission to consult his subjects. War ensued, and he lost his kingdom before the judgment was acted upon.

In 1295 war broke out between France and England. The estates of Scotland eagerly caught at so favourable an opportunity of asserting the independence of their country, and prevailed upon Baliol to conclude an alliance offensive and defensive with the French monarch. The management of this was intrusted to a committee of nobles, the nation having no confidence either in Baliol's patriotism or wisdom. Edward made extensive preparations for chastising his rebellious vassals. He first cited Baliol to appear before him at Newcastle. The summons was unattended to, the Scottish barons detaining their king in a kind of honourable captivity in the highlands. This was in March. On the 5th of April Baliol sent to the English monarch a formal renunciation of homage in his own name and that of his barons. 'Felon fool!' exclaimed Edward, in a tone of scornful pity, 'but since he will not come to us, we will go to him.' The usual fortune of the English arms prevailed: the Scotch were everywhere defeated; and the unfortunate Baliol was compelled to perform the most humiliating acts of feudal penance. Mounted on a galloway, and bearing a white wand, the emblem of vassalage, he met his offended sovereign, and after expressing his sorrow for his alliance with the French king and rebellion against his liege lord, he was compelled to sign an instrument, in which he acknowledged the right of the superior lord to enter into possession of his fee after the renunciation of homage, and transferred to him the fealty which the Scottish barons and freeholders had sworn to himself. This formal surrender of his kingdom of Scotland took place on the 2nd of July, 1296, just four years after his accession.

Edward's treatment of the deposed monarch was indulgent, and showed that he regarded him as a mere puppet of royalty in the hands of the lords of his council, who originated and conducted the war. From Kincardine, where he signed the act of abdication, he was transferred, with his son Edward Baliol, to the Tower of London, where he resided for three years, with some state, and the liberty of a circle of twenty miles. There is reason to believe that he was serious in saying that he parted with his crown without regret, and that he longed to lead a private life on his patrimonial estates in Normandy. His wishes were gratified in 1299, three years after his abdication. He solemnly pledged himself never more to intermeddle in the affairs of Scotland; and the pope having become surety for the performance of his promise, he was permitted to return to Normandy, where he lived in obscurity, and apparently forgotten, till his death, which took place in 1314, just after the battle of Bannockburn.

Baliol is usually held up to scorn by Scottish historians as a mean-spirited prince, who purchased the empty honours of a throne at the expense of his country and independence. But it required much more firmness and ability than he possessed, and a much more favourable combination of circumstances than attended his elevation, to defeat the ambitious designs of his powerful neighbour, and wield the sceptre of Scotland in the unsettled times in which he lived. 'To me,' says Dr. Lingard, 'he appears as deserving of pity as of blame.' The contemptuous epithet *Toom Tabard*, 'Empty Jacket,' bears significant testimony to the estimation in which he was held by his countrymen.

(Hemingford's *Hist.*, and Rymer's *Fœdera*; Lord Hailes's *Annals*; Tytler's *History of Scotland*; and Lingard's *History of England*. The article 'Baliol' in the *Biographia Britannica*, compiled with unusual care and research, is worth consulting.)

BALLIOL, or BALIOL, EDWARD, shared his father's captivity in the Tower, and accompanied him to his paternal residence in Normandy. With the exception of his visits to the English court in 1324 (when he was invited over by Edward II. with a view to intimidate Robert Bruce), and in 1327, it would appear that he led a life of retirement in Normandy till the year 1332, when we find him taking an active part in the enterprise of the Lords Wake, Beaumont, and other 'querellours' (as the disinherited lords were called), to take forcible possession of their forfeited estates in Scotland. Many of the Anglo-Norman barons possessed estates both in Scotland and England; and during the war between the Bruce and the English kings, which ended in favour of the former, their estates were seized by both the belligerents. An express clause, however, in the treaty of Northampton in 1327, restored the forfeited Scottish estates of the English Lords Percy, Wake, and Beaumont; and under the sanction of this clause, the last two noblemen, after having in vain claimed its fulfilment from the regent and parliament of Scotland, determined to assert their rights by force of arms. Edward Baliol was readily induced to join the enterprise,—urged by an adventurous spirit, and the recollection that his interests were most affected by the present state of things in Scotland.

The force collected by these adventurers for the invasion of a kingdom flushed with the recollection of the victory of Bannockburn and with newly-won independence, did not exceed 300 horse and a few foot soldiers. With this small body Baliol and his associates set sail from Ravenspur on the Humber—then a port of consequence, now a range of sands,

dry at low water—having been prohibited by Edward III. (who, however, covertly sanctioned the enterprise) from marching armed men through the northern counties, or perpetrating any act which could be deemed a violation of the peace between the two kingdoms. The progress of this handful of invaders reads like romance. They entered the Firth of Forth, landed at Kinghorn in Fifeshire, defeated the Earl of Fife, and, with an increased force not exceeding altogether 3000 men, marched boldly across the country to meet an enemy at least ten times more numerous than themselves. The army of Baliol encamped near Forteviot, with the river Earn in its front. On the opposite bank the Earl of Mar lay encamped with a force of from 30,000 to 40,000 men; while a second army lay within eight miles of Baliol's flank. His situation was desperate; and he relieved himself from it by a resolution as desperate. In the dead of night the English force crossed the Earn at a point where it was fordable, and attacked the sleeping and defenceless Scots before they were aware of their approach. The carnage was dreadful: 13,000 Scots, including the Earls of Mar and Moray, and many knights and barons, lay dead on Dufflin Moor, the scene of battle; while the loss of the English, as at the memorable field of Cressy, did not exceed a few gentlemen and foot soldiers. From Dufflin Moor Baliol and his confederate barons hastened to Perth, where he was unsuccessfully besieged by the Earl of March, the commander of the army that lay on his left flank when encamped at the Earn. This force having been dispersed, the antient followers of his family, and all persons disaffected to the family of Bruce, crowded to his standard, and he was crowned king of Scotland at Scone, on the 24th of September, only seven weeks from the day of his landing at Kinghorn.

So rapid a conquest, with means so disproportionate to the magnitude of the result, was only equalled by the suddenness with which it was overturned. Baliol having privately renewed to Edward III. all the forms of feudal subjugation imposed on his father by the first Edward, and concluded an armistice for the purpose of settling the kingdom by a convention of the states, lay carelessly encamped at Annan, where he was surprised by a body of horse commanded by the young Earl of Moray, brother to the Earl who fell at Dufflin, and with difficulty escaped half naked to the English Marches, once more an exile and a fugitive. This event occurred on the 16th December, within less than three months from the date of his coronation.

Edward III. promptly interfered in favour of his vassal; and the battle of Halidon Hill, July 10, 1333, again placed Edward Baliol on the throne of Scotland. The loss of the Scots in this action was so great as to be deemed irrecoverable, and probably Baliol's seat would have been firm had he not outraged the national feelings by the extent of his concessions to his royal benefactor. The obligation of homage and feudal service to the king of England was undertaken in the fullest terms. The town of Berwick was given up to him, and Baliol by a solemn instrument made an absolute surrender of the fertile provinces of Berwickshire, Roxburghshire, Selkirkshire, Peeblesshire, and Dumfriesshire, together with the Lothians. The price which he thus paid for a mutilated sovereignty proved his unworthiness to hold it. The nation turned with disgust from him to David, the infant son of Robert Bruce.

It would be a tedious and unprofitable task to detail the various fortunes of Edward Baliol till his final expulsion from the throne of Scotland. So long as he was supported by the king of England he exercised a nominal sovereignty, but the moment the pressure of that monarch's iron hand was withdrawn, the deep-rooted hatred of the Scots against their vassal king broke out into fresh acts of resistance. Baliol himself placed so little reliance on his subjects, that he fled to England at every reverse of fortune. The feelings of the bulk of the Scottish nation towards his person are forcibly portrayed by an old historian quoted by Sir Walter Scott (*Hist. Scotland, Cab. Cycl.*): 'If you asked a grown-up person who was his king, he dared make no other answer save by naming Edward Baliol, while the undissembling frankness of childhood answered the same question with the name of David Bruce.'

In this manner Baliol contrived for some years to struggle against the obstinacy of his opponents, and the lukewarmness and perfidy of his adherents. In 1334 he was compelled to fly, in consequence of a quarrel between the most powerful of his confederate barons. He was soon after restored by the arms of his feudal master. Next year Edward III. again marched an army into Scotland, for the double purpose of sustaining his vassal and securing the territories which had been ceded to him. Fortunately for Scotland, the power and ambition of this warlike and able monarch were soon after allured by a more splendid prize, the conquest of France, which mainly engrossed his attention and resources for several years; during which, fortress after fortress fell from the hands of Baliol, and the cause of King David, the heir of Bruce, daily acquired strength.

In 1355 Edward III. determined to put an end to the interruptions which the Scottish wars had constantly offered to his operations in France. He marched an immense army, composed, in great part, of the victorious veterans in the French wars, with a view of effecting a final conquest of the kingdom, and annexing it, as Edward I. had annexed Wales, to the larger and richer portion of the island. As a preliminary step he purchased Baliol's rights to the Scottish throne. This was easily arranged. In point of fact Baliol had ceased to exercise the functions of royalty since 1341, when King David ventured to visit his kingdom; and, advanced in years, and without children or near of kin to inherit, he gladly exchanged the phantom of sovereignty for the retirement and calm suitable to the evening of life. He appeared before Edward attired in all the symbols of royalty, and formally divesting himself of them, and laying his golden crown at the feet of the English king, ceded to him all right, title, and interest which he had or might claim to the sovereignty of Scotland. For the surrender of a barren and disputed title he received a present of 5000 marks, and an yearly annuity of 2000*l.* sterling. 'With this splendid income (we quote Sir Walter Scott, *Hist. Scotland*, vol. i p. 206) Edward Baliol retired into privacy and obscurity, and is never again mentioned in history. The spirit of enterprise which dictated the invasion of Scotland in 1332, and the adventurous attack upon the Scottish encampment at Dufflin Moor, shows itself in no other part of his conduct, which may lead us to think that an attempt so daring was no suggestion of his own mind, but breathed into it by the counsels of some master spirit among his counsellors. In battle he showed the bravery of a soldier, but in other respects he never seems to have displayed talents, whether in war or peace.' He died childless at Doncaster, in the year 1363; and with him ended the line of Baliol.

BALLIOL COLLEGE, Oxford. The founder of this college was John Balliol, or de Balliol, of Barnard's Castle, in the county of Durham, a man of great opulence and power in the thirteenth century, and a steady adherent to King Henry III. in all his wars and contests. The wealth and political consequence of John de Balliol were dignified by a love of learning and a benevolence of disposition which, about the year 1263 (or 1268, as Wood thinks), induced him to maintain certain poor scholars of Oxford, in number sixteen, by exhibitions, probably with a view to a more permanent establishment. On his death, in 1269, he recommended the objects of his bounty to his lady and his executors only, leaving no written deed or authority for their support. As what he had previously given was from his personal estate, now in other hands, the care of them would, in all probability, have ceased, had not his widow, who is styled the Lady Dervorgille, been persuaded to fulfil his intention in the most honourable manner by taking upon herself their future maintenance. Her principal adviser in this business is said to have been Richard Slickbury, a minorite friar, her confessor.

The first step which the Lady Dervorgille took was to hire a house in what was then Horsemonger Lane, afterwards called Canditch, in St. Mary Magdalen's parish, and on the site where part of the present college stands; and being aided in the design by her husband's executors, she continued the provision which he had allotted. In 1282 she gave them statutes under her seal, and appointed Hugh de Hartipoll and William de Menyle their procurators or governors; beside whom they were also allowed to choose a Principal, subordinate to the procurators. In 1284 she purchased a tenement of a citizen of Oxford, called Mary's Hall, as a perpetual settlement for the principal and scholars of the house of Balliol. This edifice, after receiving suitable repairs and additions, was called New Balliol Hall; the former residence of the scholars then beginning to receive the name of Old Balliol Hall. In the same year she made over

certain lands in the county of Northumberland, the greater part of which were afterwards lost. The foundation, however, was, about this time, confirmed by Oliver, Bishop of Lincoln, and by John Balliol, the founder's son, afterwards the ill fated King of Scotland.

The revenues of this college were at first very small. yielding only eight-pence per week to each scholar, or 27*l.* 9*s.* 4*d.* for the whole per annum, which was soon found insufficient. A number of benefactors, however, promoted the purposes of the founder by enriching the establishment with gifts of land, money, and church livings. In 1294 Hugh de Wychenbroke or de Wyer gave the advowson of St. Lawrence Jewry, London, and some other property in that parish. In 1310 Hugh de Warkenby, principal, and William de Gotham, a fellow of the college, gave four messuages in School Street, Oxford, for the support of a chaplain to officiate in the oratory, which had been provided a few years before. In 1320 Richard de Hunsingore gave a tenement in Oxford, in St. John's parish, which is now part of Alban Hall, and some lands. But as with all these helps the scholars had no more, weekly, than the eight-pence before mentioned, and that no longer than until they became Masters of Arts, many of them were obliged to relinquish their studies, and even to follow mechanical trades for a maintenance.

The first benefactor who stepped forward to relieve them in this distress, and to support the college, was Sir William Felton, knight, who, about the year 1340, gave them the rectory and manor of Alboldesly, or Abbotsley, in Huntingdonshire; and Pope Clement, who confirmed Sir William Felton's gift, joined with him likewise in introducing a regulation, that the fellows might keep their place, even after becoming masters or doctors, until they succeeded to a living. About the same time, both their numbers and revenues were augmented by the bounty of Sir Philip Somervyle, of Wykenore, in Staffordshire, who gave the church of Long Benton, with lands in the county of Northumberland, for the maintenance of six scholars, who were to be chosen by the sixteen fellows already belonging to the college, and to be natives of the places nearest to the estates he made over to them, and such as were the poorest and of the most promising abilities. This benefaction was accounted so considerable as to give Sir Philip the privilege of introducing a new body of statutes, the principal articles of which were, that the society should choose out of their number one who should govern all the house, he and his successors to be always called by the name of Master; that after the election he should be presented first to the lords of the manor of Wykenore, if of the posterity of Sir Philip Somervyle; secondly, to the chancellor of the university; thirdly, to the guardian or warden of Durham College, Oxford; and lastly, to the extrinsic masters of this college, who were to confirm the election, and make him swear to maintain the statutes, &c., of Sir Philip Somervyle. Other regulations were introduced respecting their studies, and the weekly allowance of the fellows and scholars was raised to 11*d.*, which, in case of dearness of victuals, might be increased to 1*s.* 3*d.* These new statutes were dated October 18, 1340, and were confirmed by Aungerville, bishop of Durham, and by Edward Balliol, king of Scotland.

Two years after, Thomas Cave, rector of Welwyke, in Yorkshire, left 100*l.* for the purchase of benefices in Lincolnshire, out of the profits of which the number of scholars was to be increased. William Brocklesby, clerk, to whose care this money was entrusted, purchased, in 1343, the livings of Fillingham, Riseholme, and Brockleby or Brattleby, which were settled on the college; but it does not appear what number of scholars was added. Their number, at all times, seems to have been regulated by the state of their revenues, and to have fluctuated accordingly; and it was wisely provided that the number of scholars on any particular foundation should be reduced, if that foundation proved inadequate to their maintenance, and thus any infringement on the general revenues or other foundations of the college was prevented.

In 1364, Simon de Sudbury, then bishop of London, afterwards archbishop of Canterbury, gave this society a new body of statutes, which continued in force till 1507; when, in consequence of an application of the masters and scholars to Pope Julius II., the bishops of Winchester and Carlisle, Fox and Sever, drew up another body of statutes, limiting the number of fellows to ten, who were all to study divinity, and enter into holy orders after some years' standing in the degree of master. Each fellow was to have the presentation of one scholar, and the master two, who were to serve the master and fellows consistently with the prosecution of their studies. Of the fellows, two were to be priests perpetually officiating in the chapel, and two were to be deans, and two bursars, annually chosen. The exact number therefore, at this time, was one master, ten fellows, and twelve scholars.

This number was afterwards increased by lands bequeathed in 1522 by Thomas Harrope, or Harrowe, rector of Hasely, in Oxfordshire; and in 1566, Dr. John Bell, bishop of Worcester, who died in that year, founded two exhibitions for youths born in the diocese of Worcester, on certain lands in the parish of Clerkenwell, London. William Hammond, esq., of Guildford, in Surrey, and some time mayor of that place, who died in 1575, bequeathed 100*l.* per annum; but no more of that legacy was recovered than the principal sum of 200*l.*, with which the society purchased Hammond Hall, afterwards called Hammond's Lodgings, on the west side of the college.

At the latter end of Queen Elizabeth's reign, Peter Blundell, of Tiverton, in Devonshire, clothier, who died in 1601, gave two-thirds of 2000*l.* for founding six scholarships in Oxford and Cambridge, to be filled by youths from the grammar-school of Tiverton, which he had endowed; and a third part of this money was laid out on lands in Oxfordshire for the maintenance of one fellow and one scholar in this college. One fellow and one scholar were appointed in 1615, and another fellowship and scholarship added by the representatives of Blundell's executors in 1676. In 1605, Mrs. Mary Dunch, wife of William Dunch, of Brightwell, in Berkshire, gave an annuity of 10*l.* charged upon North Morton, in Berkshire, for the maintenance of one scholar. John Browne, B.D., vicar of Basingstoke, founded an exhibition here, for youths from that place. In 1620, Lady Elizabeth Periam, of Greenland, in Berkshire, widow of Sir William Periam, Lord Chief Baron of the Exchequer (and sister of Lord Bacon), founded a fellowship and two scholarships, the scholars to enjoy their places three years after they had proceeded B.A. Dr. John Warner, Bishop of Rochester, gave, in 1666, part of the profits of his manor of Swayton, in Lincolnshire, for the maintenance here of four scholars of the Scotch nation, to be chosen from time to time by the Archbishop of Canterbury and the Bishop of Rochester. Each was to have 20*l.* yearly until M.A., when they were to return to their own country, in holy orders. Owing to some demur on the part of the college, these scholars were first placed in Gloucester Hall (now Worcester College), and there was a design to have made that a college for their use; but in the mastership of Dr. Thomas Good, in 1672, they were removed hither; and the fund for Scotch scholars was soon increased by the liberality of John Snell, esq., who gave the manor of Uffton, in Warwickshire, for that purpose. Mr. Snell was a native of the county of Ayr, in Scotland, and educated in the University of Glasgow. He died in 1679, and left the estate at Uffton for the maintenance of certain Scotch scholars in such college or hall of Oxford as should be chosen by the Vice-Chancellor, the Provost of Queen's, the Master of Balliol, and the President of St. John's, and their choice fell upon Balliol. The estate was then valued at 450*l.* per annum, which, after a certain number of years, and money expended thence, was to be applied for the benefit of not more than twelve, nor under five scholars, to be chosen from Glasgow College, from such as had passed three years there, or two at the least, and one or two in some other college.

The latest considerable benefaction to this college is that of Mrs. Jane Williams, who, in accordance with the benevolent design of her husband, formerly a fellow of the college, bequeathed, in 1830, an estate, of which the annual proceeds are to be applied to the purchase of advowsons, or the augmentations of small livings already belonging to the society.

The actual society of Balliol College at present consists of a master, twelve fellows, and fourteen scholars. Of these, nine fellows and ten scholars are on the old foundation; and their fellowships and scholarships, together with the fellowship and two scholarships of Lady Periam's foundation, are all open to candidates, without regard to the place of their birth, residence, or education. The nomination to the two fellowships and two scholarships supplied from Tiverton school is vested in the feoffees of Blundell's lands. The number of members, resident and non-resident, upon

the college books, according to the Oxford Calendar for 1834, is 277.

The master and fellows of this college, by their statutes, enjoy the singular privilege of electing their own visitor. The present visitor is the Archbishop of Canterbury.

Since its foundation, Balliol College has been governed by two *procurators*, eight *principals* or *wardens*, and forty-two *masters*. Among the last, John Wickliffe, the reformer, is perhaps the most eminent. He is mentioned as master in A.D. 1361. Another was Brookes, Bishop of Gloucester, one of Cranmer's judges. Dr. Henry Savage, who was chosen master during the usurpation, but conformed afterwards, published a work entitled *Balliofergus, or a Commentary upon the Foundation, Founders, and Affairs of Balliol College*, 4to., 1668. It is a work in no great estimation. The present master is Richard Jenkyns, D.D., elected in 1819.

Among the more eminent members of this college are enumerated Humphrey Duke of Gloucester, the first founder of a public library at Oxford; John Tiptoft, Earl of Worcester, *t.* Edward IV.; Ross of Warwick, the historian; Morton, Archbishop of Canterbury, the favourite of Henry VII.; Tunstall, Bishop of Durham; Lord Keeper Coventry; Parsons, the celebrated Jesuit; Tobias Crisp, reputed founder of the sect of Antinomians; John Evelyn; Gregory, Keil, and Bradley, mathematicians and astronomers; James West, President of the Royal Society; and Douglas, Bishop of Salisbury.

The Church livings in the patronage of this Society are, the rectory and the vicarage of Duloe, in Cornwall; the vicarage of Beere Regis, in Dorsetshire; the rectories of All Saints, St. Leonard, St Nicholas, and the Holy Trinity, and the curacy of St. Botolph, at Colchester, in Essex; the vicarage of Marks Tey, and the rectory of Tendring, in Essex; the vicarage of Abbotesley, in Huntingdonshire; the rectories of Brattleby, Fillingham, and Rysolme, in Lincolnshire; the alternate presentation, with the Dean and Chapter of St. Paul's, to the vicarage of St. Lawrence Jewry, and the rectory of St. Mary Magdalen, Milk-street, in London; the vicarage of Mickle or Long Benton, in Northumberland; and the rectories of Culfe or Kilve cum Stringston, Huntspill, and Timbsbury, in Northumberland.

The more antient parts of the buildings of this college have been so completely changed by successive alterations, made in the course of five centuries, that it would be idle now to attempt to identify the original 'refectory, kitchen, outhouses, and walks,' ascribed by Wood to the lady Dervorgille, in the latter part of the thirteenth century. It appears, however, that old Balliol Hall stood westward on the ground afterwards occupied by Hammond's Lodgings; and that Mary's Hall, to which the society soon removed, called for some time New Balliol Hall, was situated at the S.W. corner of the present quadrangle.

The oldest part of the quadrangle, as it stood in Wood's time, was supposed by him to be the east side, having been partly rebuilt about the time of Henry VI. The whole of this, together with the south side as far as the tower, was either rebuilt or recased about a century ago, by the aid of contributions from several benefactors, among the principal of whom were Dr. Henry Compton, Bishop of London, Visitor of the College; John Radcliffe, M.D.; and Sir E. Turner. Nearly about the same period was erected, in the western extremity of the college, facing Magdalen parish church, a building formerly known by the name of the Bristol Building, being intended for the accommodation of certain exhibitioners from that city: the plan, however, for that purpose, then in contemplation, was never carried into effect. The front of this building was cased with Bath stone in 1826, so as to correspond with the adjoining new building then just finished on the north side; that on the south was erected in 1769, from a design of Henry Keene, architect, upon the site of some old buildings, supposed to have been formerly St. Margaret's Hall. This was done chiefly at the expense of the Rev. Henry Fisher, who contributed 3000*l.* toward the work: he had been formerly fellow of the college, and vicar of Beere Regis, Dorset, where an inscription is to be found over his grave, similar to that which, by his own order, was placed on the building raised by his benefaction: VERBVM, NON AMPLIVS—FISHER.

In 1825, several sets of rooms contiguous to the Bristol Building were pulled down; and upon their site was erected, by the masters and fellows, an edifice containing twelve sets of commodious rooms: the elevation and plan by George Basevi, architect.

The College Hall, which is on the west side of the quadrangle, was originally built in the reign of Henry VI.; but the present interior is modern.

The interior of the Library was rebuilt about the beginning of the present century, by Wyat, in imitation of the Gothic style.

The Chapel was built between 1521 and 1529. In one of the windows on the south side is the story of Hezekiah's sickness and recovery, by Bernard Van Linge, dated 1637.

(See Wood's *Hist. of the Colleges and Halls of Oxford*, by Gutch, 4to., Oxf. 1786, pp. 70-103; Chalmers's *Hist. of the Univ. of Oxford*, 8vo., Oxf. 1810, vol. i. pp. 43-61; *Memorials of Oxford*, by Dr. Ingram, 4to.; and the *Oxford Univ. Calendar*, 12mo., 1834.)

BALLISTIC PENDULUM, a heavy wooden pendulum, in section like a gardener's spade; the lower part is a heavy cubical block of wood, plated with iron at the back: it was invented and used by Mr. Robins, the celebrated writer on gunnery, for the purpose of measuring the velocity of cannon and musket balls. It must be of such a weight that the ball fired into it may not cause a vibration of very great extent. It is described at great length in Robins's *Principles of Gunnery* (we recommend Hutton's edition, London, 1805), prop. viii., and in Hutton's *Mathematical Tracts*, vol. ii. tract 34. Those who attempt any experiments with such an instrument should particularly attend to the cautions given by Mr. Robins, who learnt them at the risk of his life.

The principle is as follows:—The pendulum in its state of rest all but touches with its lower end a horizontal bar. To the lower end of the pendulum is attached a ribbon, which passes through an orifice in the bar, moving almost freely. When, therefore, the pendulum is raised, a quantity of ribbon is drawn out, which, if the radius be the whole length of the pendulum, is the chord of the angle through which the pendulum is inclined by the shock. When a shot is fired into the pendulum, no more ribbon is disengaged, during the oscillations which follow, than was drawn out by the first rise of the pendulum; because friction and the resistance of the air will continually diminish the extent of the oscillation. The extent of the first oscillation is greater or less, according as the momentum of the shot is greater or less; and the mechanical problem to be solved is as follows:—Given the weight of the shot, the place at which it strikes, the weight, form, &c. of the pendulum, and the effect produced upon it by the shot; required the velocity of the shot. The formula which answers this question is as follows:

b is the weight of the ball.
p that of the whole pendulum.
g distance from the pivot of the centre of gravity of the whole (after the ball).
i distance from the pivot to the point struck.
c length of ribbon disengaged.
r distance from the pivot to the ribbon.
n the number of vibrations in a minute after receiving the shot.

b and p must be measured in the same unit of weight, and g, i, c, r, in the same unit of length. Then will the velocity of the ball at the moment of striking, *in feet*, be

$$614{\cdot}58\, g\, c \times \frac{p+b}{b\, i\, r\, n}$$

The value of g may be determined by mechanical methods (see GRAVITY, CENTRE OF): but if it be determined, as usual, before the shot, then the value of g after the shot is

$$g + \frac{i-g}{p} \times b$$

The ballistic pendulum, in the hands of Robins and Hutton, has given almost all the information we have obtained respecting the velocity of cannon-balls, and the resistance of the air to rapid motions. [See AERO-DYNAMICS.] It has also tested the correctness of the theory propounded on that subject by Robins. [See GUNNERY.] We give in the following page the results of that set of experiments, in which the greatest difference was found between the prediction from theory and the experiment, omitting all the circumstances of each charge, as no connexion can be traced between them and the discordances. In the fourth and fifth of our list, the barrel had previously lain by in a

moist place. Considering the very great difficulty and uncertainty of the subject, the accordance is remarkable. The two first columns represent the length of ribbon disengaged (in inches and tenths), the first from experiment, the second from theory; the third is the difference between the two:

Experiment.	Theory.	Difference
17·1	17·2	+ ·1
15·2	15·0	— ·2
15·4	15·0	— ·4
11·5	12·8	+ 1·3
11·5	12·8	+ 1·3
8·7	9·0	+ ·3
12·3	12·5	+ ·2
14·4	14·4	0·0
14·4	14·4	0·0
10·3	10·5	+ ·2
14·7	14·5	— ·2
15·7	15·3	— ·4
Average discordance		+ ·18

When a heavier pendulum was used, the discordances were considerably less. The friction of the pivots was not taken into account in the theory.

It has been proposed to make the gun itself a pendulum, by hanging it as such, and observing, by means of a ribbon, the arc of recoil. This instrument was also used by Robins as an *éprouvette* for gunpowder, by firing the same gun with successive charges of powder of different qualities, and using no ball. By first measuring the recoil without ball and afterwards with it, it is presumed that the additional momentum given to the gun in one direction is also that given to the ball in the other. This there appears no reason to dispute; but the comparison between the gun-pendulum and the ballistic pendulum cannot be very satisfactorily made, because between the two comes another unknown quantity, namely, the effect of the air on the ball between the instant of leaving the gun and striking the pendulum. But various circumstances, particularly described by Dr. Hutton in the tract alluded to, render the principle assumed in the use of the gun-pendulum very doubtful.

BA'LLIUM. This term, according to Dufresne, antiently meant an outer bulwark; but was afterwards adopted for the area or court-yard contained within one. It appears clear from the word, and its original use, that it is a corrupted form of the Latin *Vallium*.

Grose (*Antiq. of Engl. and Wales*, vol. i. pref. p. 7) says, the ditch of a royal castle was sometimes called the Ditch del Bayle, or of the Ballium—to distinguish it from the ditches of the interior works. Over it was either a standing or draw bridge, leading to the ballium. Within the ditch were the walls of the ballium, or outworks. In towns, the appellation of ballium was given to a work fenced with palisades, and sometimes masonry, covering the suburbs; but in castles it was the space immediately within the outer wall. When there was a double enclosure of walls, the areas next each wall were styled the *outer* and *inner* ballia. The manner in which these are mentioned by Camden, from the Chronicle of Dunstaple, in the siege of Bedford Castle, A.D. 1224, sufficiently justifies this position. The castle was taken by four assaults. In the first was taken the barbican; in the second, the outer ballia; in the third, the wall by the old tower was thrown down by the miners, when with great danger they possessed themselves of the inner ballia through a chink; at the fourth assault the miners set fire to the tower, so that the smoke burst out, and the tower itself was cloven to that degree as to show visibly some broad chinks, whereupon the enemy surrendered.

The wall of the ballium in castles was commonly high, flanked with towers, and had a parapet, embattled, crenellated, or garretted for the mounting of it. There were flights of steps at convenient distances; and the parapet often had the merlons pierced with long chinks, ending in round holes, called oillets.

Within the ballium were the lodgings and barracks for the garrison and artificers, the stables, hospital, wells, chapel, and even sometimes a monastery. Large mounts were also thrown up in this place: these served, like modern cavaliers, to command the adjacent country; these last being generally raised within the body of the place ten or twelve feet higher than the rest of the works, and commonly within the bastion.

The entrance into the ballium was commonly through a strong machicolated and embattled gate, between two towers, secured by a herse or portcullis. Over this gate were rooms, originally intended for the porter of the castle; the towers served for the *corps de garde*. Compare the representation of the works of Dover Castle, in Grose's *Antiq.*, vol. i. p. 10.

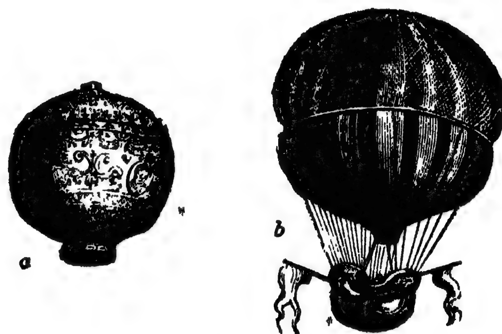
The church of St. Peter in the Bailey, at Oxford, derives its appellation from having formerly stood within the outer ballium of Oxford Castle. The Old Bailey, or outer space near Ludgate, in London, received its name from its relative position in regard of the antient wall of the city.

Froissart, in his account of the siege of Amand by the Earl of Hainault, *t.* Edward III., says, the attack was so furious that the *baillies* were instantly won. Johnes, in his English *Froissart* (4to. edit. vol. i. p. 161), translates this word barriers.

Besides Grose's work already referred to, see Dufresne's *Glossar. ad Script. med. et inf. Ætatis.* fol. Francof. 1681, tom. i. c. 447; King's *Observ. on Anc. Castles*, Archæol. vol. vi. pp. 249, 308; *Munim. Antiqua*, vol. ii. p. 45; Henry's *Hist. of Great Brit.*, 8vo. edit. 1805, vol. vi. p. 189; Ellis's *Fableaux*, edit. 1815, vol. i. p. 153, Notes.

BALLOON, from the French *ballon*, a little ball, is applied, in our language, only to the well-known machine which, consisting of an envelope of linen or other stuff filled with hydrogen or other gas specifically lighter than the atmosphere, is employed to raise those who dare trust themselves to a voyage in the air.

We have preferred placing what we have to say on the subject of AERONAUTICS under this word, because the art has not arrived at a degree of approach towards perfection which makes such a name of any use, or even meaning. Our air navigation, compared with that of the sea, is little more than on a level with the essay of the first rude men who discovered that a hollow wooden vessel might be made large enough to float a body heavier than water. The first step towards guiding the machine is yet to be made; and some little power of ascending and descending is all that has been gained.



Balloons as they appeared to spectators on the earth.
a, First Voyage, Nov. 1783. *b*, Second Voyage, Dec. 1783.

If we consider that the first aërial voyage was made in the year 1783, and that minds of every variety of power have since been employed in the attempt to reduce air navigation to some degree of certainty, it will appear surprising that some success has not been obtained. All do not observe how little analogy there is between the motion of a ship and that of a balloon. The former sails in two elements, and the action of the water upon the rudder is a guide to the impelling power derived from the air. But no such regulator can be applied to the balloon, which is sustained, as well as impelled, by the air; and the apparent cause of surprise ceases when we begin to see that the circumstances of the two kinds of motion present totally different problems.

We shall proceed to give some account of the history of the invention. Our principal authorities are, 1. Cavallo, *History and Practice of Aërostation*, London, 1785; 2. Faujas de St. Fond, *Description des Expériences Aërostatiques*, &c. Paris, 1784; 3. Bourgeois, *Recherches sur l'Art de Voler*, &c. Paris, 1784.

The notion of imitating the flying of birds is very antient. We pass over the winged gods, the stories of Abaris, Dædalus, and the like, as fictions which, like many others, might have been purely imaginative, and not traditions of any previous reality. But Strabo (p. 296) mentions the Cap-

nobatæ (or Capnioi, as has been conjectured), a Scythian people, who (so the word has been very foolishly interpreted) raised themselves by smoke, as the vulgar at first imagined Montgolfier did. The Carolinians are also mentioned by the Jesuit Cantova as having a fable about a female deity who raised herself to heaven by the smoke of a great fire. We may also mention the pigeon of Archytas, the oracle of Hierapolis, which Lucian professes to have seen raise itself in the air; the fable, in British mythology, of Bladud or Baldud, the father of the well-known Lear, which resembles that of Dædalus; and many others, all of which serve to show that the notion of the possibility of raising a man or a machine was very widely extended in the antient world. Roger Bacon (*De Mirabili Potestate*, &c.) says that there certainly is a flying machine, of which he knows the name of the inventor, but which he has neither seen himself, nor any one whom he knows. Van Helmont and others proved the possibility of flying, by very eloquent discourses, which convinced all hearers. Bishop Wilkins, in his *Mathematical Magic*, A.D. 1680, proposes a carriage, with sails like those of a windmill, to be driven by the air; and the same thing, according to custom in the case of all inventions, has been attributed to the Chinese. We shall only mention Schott, Baptista Porta, Cardan, and Fabri, as having maintained the possibility of flying. The Jesuit Francis Lana (A.D. 1670), among many other projects, has given perhaps the first idea of a real balloon, as we have defined it. He proposes to raise a vessel by means of metal balls, strong enough, when exhausted, to resist the pressure of the external air, but at the same time so thin as, in the same circumstances, to be lighter than their bulk of air. To the possibility of this he asserts that he sees no objection except that the Almighty would never allow an invention to succeed, by means of which civil government could so easily be disturbed. A reason of this sort was all-powerful in his age, which abounded in the knowledge of the minutest secrets of Providence: had the good father tried the experiment, he would have found that strength to resist the external air is incompatible with the necessary degree of thinness in the material, as was observed by Leibnitz. The work of Lana, *Prodromo dell' Arte maestra*, was published in 1670, and a full account is also to be found in the *Collegium Curiosum* of Sturmius, A.D. 1701 (Tentamen X.), and in the work cited of M. Bourgeois. As a warning not to trust implicitly the relations of writers of the seventeenth and preceding centuries, we cite the following cases.

In the *Ars Magnetica* of Kircher, that author describes a method of imitating the dove of Archytas, by attaching the bird by a string to the hand of a statue, over which is a large dial. A magnet revolving behind the dial causes the dove to fly round the head of the statue, and point to the hour of the day. Schott (*Magia Universalis*, part iii., book 3) expressly says that Kircher carried this notion into effect, and that when he thereupon refused to satisfy inquirers who wished to know from him whether he understood the art of flying, it was believed that he had been prohibited by the pope. But Kircher himself does not say he had constructed such a machine; but only 'you may arrange it thus by help of workmen.' And in speaking of the power of the magnet required, which he says must be very great, he does not state what the power of his own was, but only that he had seen *a* magnet which, &c. &c., (page 379, edition of 1641.)

The second instance is as follows:—Sextus of Ratisbon, Kircher, Porta, Schott, Gassendi, Lana, Ramus, Bishop Wilkins, all unite in stating that Regiomontanus constructed an eagle which flew out from Nuremberg to meet the emperor (Charles V., expressly stated by some of them), and on meeting him flew back again over his head to the town. If there be any who can believe this, they will probably not reject it, accompanied by the additional fact, that Regiomontanus died twenty-five years before Charles V. was born, which has been overlooked by some of the authorities above cited. After such an instance, we may pass over the car of Stevinus, and numerous other flying machines, and be contented with this single result only, that though the art of flying had been diligently studied, or at least discussed, for centuries, the exceedingly simple contrivance of Montgolfier had not been tried, or even mentioned, by any of the projectors, some of whom were men of ingenuity.

Nothing can set in a stronger light the antipathy of the earlier moderns to experimental research. And it is no small honour to the Montgolfiers, that the hint given by Lana, the every-day experiment of soap-bubbles, and the like, should have remained without results till their time.

We consider him the inventor of the balloon who raised a mass of solid substance to some considerable height in the atmosphere. But if we were to take the license which is so common, of disputing the right of an inventor on account of some experiments containing a principle common with his own, we might either say that this machine has been invented from time immemorial, in the ascent of soap-bubbles, or we might cite Candido Buono, who made one scale of a balance ascend, by rarefying with a red-hot iron the air underneath it. After Cavendish had ascertained how much hydrogen weighs less than air, it immediately occurred to Dr. Black, that a light substance, filled with the above-mentioned gas, would rise of itself. But he did not pursue the idea farther; and Cavallo, who tried to put it in practice in the year 1782, could not succeed in raising, by means of hydrogen, anything heavier than a soap-bubble. We shall see that, natural as it might appear to use hydrogen for the purpose, the experiment succeeded only with a very different agent.

Stephen and Joseph de Montgolfier were paper-manufacturers at Annonay, not far from Lyons. They had both studied natural philosophy and chemistry, and their business gave them facilities for procuring large masses of light envelopes: so that we owe the invention of balloons to one of two accidents; either to that of philosophers being paper-makers, or to that of paper-makers being philosophers. We are quite in earnest, because it is stated that the brothers were not brought up to the above-mentioned business, but entered upon it on the death of a third and elder brother. Struck with the notion of confining something lighter than air in a recipient, as the means of making the latter ascend, they tried this method at about the same period as M. Cavallo, by confining hydrogen in paper. They succeeded to some extent; but the gas so soon escaped through the paper, that they abandoned the idea of anything like permanent elevation by means of it. The next thought which struck them was, that as it was supposed the elevation of the clouds was caused by the presence of electric matter, and as it seemed to them from some experiments that electrified bodies were diminished in weight, it might be possible to raise a surface, of great extent in proportion to its specific gravity, by means of electricity. After trying various methods, they applied fire underneath a balloon, *not to rarefy the inclosed air*, but 'as well to increase the layer (*couche*) of electric fluid upon the vapour in the vessel, as to divide the vapours into smaller molecules, and dilate the gas in which they are suspended.' (*Memoir of* J. Montgolfier *to the Academy of Lyons.*) It appears then, though their expressions are somewhat obscure, that they thought they were imitating a cloud, by electrifying the gases and vapours contained in the atmosphere. The experiment succeeded; and a balloon of 23,000 cubic feet (French) was raised with considerable force. All this took place early in 1782; and at that time the electric theory was stated as above. But in the report made to the Academy of Sciences (December, 1783) by the commission appointed to examine Montgolfier's invention, the inventors are spoken of as simply rarefying the air contained in the balloon; probably by that time further consideration had led them to the correct view of the subject. Except a very slight notice by Dr. Hutton (*Math. Dict.*), preceded by 'it is said,' we have not found in any English work an account of the first ideas of the Montgolfiers; we shall therefore make a further citation from their first memoir.

'An organized body in a state of ignition decomposes air, and furnishes chalky (*craieux*), mephitic, and inflammable gases. The state of ignition facilitates the union of the electric fluid with this body of vapour; the heat arising from combustion is concentrated, so as by itself to dilate the heaviest of the gases, and make it specifically lighter than common air: therefore the balloon rises, &c. It afterwards falls to the earth, because the heat is dissipated, the vapours are concentrated, and have lost a part of their electricity.'

The ideas of J. Montgolfier, as to the possible use of his invention, have that character of simplicity and soundness which distinguish the philosopher from the projector on such points. 'Large balloons might be employed for victualling a besieged town, for raising wrecked vessels, perhaps even for voyages, and certainly, in particular cases, for observations of different kinds; for reconnoitring the position of an army, or the course of vessels at twenty-five or even thirty

leagues distant, &c.' One of these ideas was put in practice at the battle of Fleurus, where the French made a reconnoissance and prevented a surprise, by means of a balloon.

The first public experiment was made at Annonay, June 5, 1783. The presence of the 'Etats Particuliers' of Vivarois at that place, tempted the brothers to request their attendance at an experiment which they proposed to make, without stating its nature. At the appointed time, nothing was seen in the public place of the town but immense folds of paper 110 feet in circumference, fixed to a frame, the whole weighing about 500 pounds, and containing 22,000 cubic feet (French measures). To the great astonishment of all, it was announced that this balloon would be filled with gas, and would rise to the clouds, which very few could believe. On the application of fire underneath, the mass gradually unfolded and assumed the form of a large globe, striving at the same time to burst from the arms which held it. At length it rose with great rapidity, and in less than ten minutes was at 1000 toises of elevation. It then described a horizontal line of 7200 feet, and gradually sank. This balloon contained nothing but heated air, maintained in a state of rarefaction by a fire, the receptacle of which was attached underneath the globe of paper, which had an orifice opening downwards. Machines on this principle were called *Montgolfiers*, to distinguish them from the hydrogen balloons which were made immediately afterwards.

The news of this phenomenon flew to Paris, where it immediately produced an excitement almost unheard-of before. That hydrogen could not have been used was evident from the description given, namely, that it was half as heavy as air. It was immediately resolved to repeat the experiment with hydrogen inclosed in lutestring, which had been dipped in the solution of Indian rubber. A subscription was opened, and the balloon was ready for filling on the 23rd of August. The gas was obtained in the usual manner, by the action of dilute sulphuric acid on iron filings. But the difficulty of filling the machine was very considerable: common air got in, no one knew how. It was at last discovered that a stop-cock had been left open; the machine was again filled, and on the 26th was allowed to rise 100 feet, to which height it was confined by ropes. On the 27th, it was transported to the Champs de Mars, where it was abandoned in the presence of an enormous crowd. It fell five leagues from Paris, after being about a quarter of an hour in the air.

J. Montgolfier had by this time arrived in Paris, where he exhibited one of his balloons on the 12th of September and again on the 19th.

The interest attached to the mere ascent of the balloon alone here ceases. We pass over therefore the various repetitions of the experiment which were made at Paris, previously to the time when men trusted themselves to this conveyance. The first aërial voyagers were a sheep, a cock, and a duck, who were sent up, without leave asked, in Montgolfier's experiment of the 19th. All came down safe with the exception of the second, whose wing was hurt; 'but this,' says M. de St. Fond, zealous for the honour of the balloon, 'was done by a kick of the sheep, half an hour before the ascent, in presence of more than ten witnesses.' He also assures his readers that they may safely discredit the rumour that the cock had broken his head; and he adds, 'It is vexatious to see the public papers thus assert facts without proof, which *in such cases* ought always to be guaranteed by the signatures of those who send them.'

It was judged prudent not to trust human life to a free balloon till the experiment of holding the machine with ropes had been tried. In this manner M. Pilâtre de Rozier ascended 100 feet on the 15th of October, and 324 feet on the 19th. The first persons who offered to leave the earth entirely were the Marquis d'Arlandes and M. Pilâtre de Rozier; and they performed this feat at the Château de la Muette, near Passy, November 21, 1783, in a *montgolfier*. We prefer to give the original documents connected with this most interesting of all voyages, namely, the *Procès Verbal*, and the letter (in part) of the Marquis d'Arlandes:

'*Procès Verbal.* To-day, November 21, 1783, at the Château de la Muette, took place an experiment with the aërostatic machine of M. de Montgolfier. The sky was partly clouded, wind north-west. At eight minutes after noon, a mortar gave notice that the machine was about to be filled. In eight minutes, notwithstanding the wind, it was ready to set off, the Marquis d'Arlandes and M. Pilâtre de Rozier being in the car. It was at first intended to retain the machine awhile with ropes, to judge what weight it would bear and see that all was right. But the wind prevented it from rising vertically, and directed it towards one of the garden walks: the ropes made several rents in it, one of six feet long. It was brought down again, and in two hours was set right. Having been filled again, it set off at fifty-four minutes past one, carrying the same persons. It rose in the most majestic manner, and when it was about 270 feet high, the intrepid voyagers took off their hats and saluted the spectators. No one could help feeling a mingled sentiment of fear and admiration. The voyagers were soon undistinguishable, but the machine, hovering upon the horizon, and displaying the most beautiful figure, rose at least 3000 feet high, and remained visible all the time. It crossed the Seine below the barrier of La Conférence; and passing thence between the Ecole Militaire and the Hôtel des Invalides, was in view of all Paris. The voyagers, satisfied with their experiment, and not wishing to travel farther, agreed to descend; but seeing that the wind was carrying them upon the houses of the Rue de Sève, Faub. St. Germain, they preserved their presence of mind, increased the fire, and continued their course through the air till they had crossed Paris. They then descended quietly on the plain, beyond the new boulevard, opposite the mill of Croulebarbe, without having felt the slightest inconvenience, and having in the car two-thirds of their fuel. They could then, if they had wished, have gone three times as far as they did go, which was 5000 toises, done in from 20 to 25 minutes. The machine was 70 feet high, 46 feet in diameter, it contained 60,000 cubic feet, and carried a weight of from 1600 to 1700 pounds. Given at the château of La Muette, at five in the afternoon. Signed, Duc de Polignac, Duc de Guisnes, Comte de Polastron, Comte de Vaudreuil, D'Hunaud, Benjamin Franklin, Faujas de St. Fond, de Lisle, le Roy, of the Academy of Sciences.'

Extracts of a Letter from the Marquis d'Arlandes to M. de St. Fond, dated November 28, 1783:—After stating that he had obtained permission from M. Montgolfier to ascend alone, but that by the advice of the latter M. de Rozier was associated with him the evening before the ascent, he proceeds thus: 'We set off at 54 minutes past one. The balloon was so placed that M. de Rozier was on the west and I on the east. The machine, says the public, rose with majesty: I think few of them saw that, at the moment when it passed the hedge, it made a half turn, and we changed our positions, which, thus altered, we retained to the end. I was astonished at the smallness of the noise or motion occasioned by our departure among the spectators: I thought they might be astonished and frightened, and might stand in need of encouragement' (a beautiful trait of coolness from the man in the balloon to those on terra firma). 'I waved my arm with little success; I then drew out and shook my handkerchief, and immediately perceived a great movement in the garden. It seemed as if the spectators all formed one mass, which rushed, by an involuntary motion, towards the wall, which it seemed to consider as the only obstacle between us. At this moment M. de Rozier called out, "You are doing nothing, and we do not rise." I begged his pardon, took some straw, moved the fire, and turned again quickly, but I could not find La Muette. In astonishment, I followed the river with my eye, and at last found where the Oise joined it. Here, then, was Conflans; and naming the principal bends of the river by the places nearest to them, I repeated Poissy, St. Germain, St. Denis, Sève, then I am still at Poissy or at Chaillot. Accordingly, looking down through the car, I saw the Visitation de Chaillot. M. Pilâtre said to me at this moment, "Here is the river, and we are descending." "Well, my friend," said I, "more fire;" and we set to work. But instead of crossing the river, as our course towards the Invalides seemed to indicate, we went along the Ile des Cygnes, entered the principal bed again, and went up the stream till we were above the barrier La Conférence. I said to my brave associate, "Here is a river which is very difficult to cross." "I think so," said he; "you are doing nothing." "I am not so strong as you," I answered; "and we are well as we are." I stirred the fire, and seized a bundle of straw, which being too much pressed, did not light well. I shook it over the flame, and the instant after I felt as if I had been seized under the arms, and I said to my friend, "We are rising now, however." "Yes, we are rising," he answered, coming

from the interior, where he had been seeing all was right. At this moment I heard a noise, high up in the balloon, which made me fear it had burst. I looked up and saw nothing; but as I had my eyes fixed on the machine, I felt a shock, the first I had experienced. The shock was upwards, and I cried out "What are you doing—are you dancing?" "I am not stirring.' "So much the better," I said; "this must be a new current, which will, I hope, take us off the river." Accordingly, I turned to see where we were, and found myself between the Ecole Militaire and the Invalides, which we had passed by about 400 toises. M. Pilâtre said, "We are in the plain." "Yes," I said, "we are getting on." "Let us set to work," he replied. I heard a new noise in the machine, which I thought came from the breaking of a cord. I looked in and saw that the southern part was full of round holes, several of them large. I said, "We must get down." "Why?' "Look," said I. At the same time, I took my sponge' (pyrotechnical term,) 'and easily extinguished the fire, which was enlarging such of the holes as I could reach; but on trying if the balloon was fast to the lower circle, I found it easily came off. I repeated to my companion, "We must descend." He looked round him and said, "We are over Paris." Having looked to the safety of the cords, I said, "We can cross Paris.' We were now coming near the roofs; we raised the fire and rose again with great ease I looked under me, and saw the Missions Etrangers, and it seemed as if we were going towards the towers of St. Sulpice, which I could see. Raising ourselves, a current turned us south. I saw on my left a wood, which I thought was the Luxembourg. We passed the Boulevard, and I called out, "Pied à terre." We stopped the fire, but the brave Pilâtre, who did not lose his self-possession, thought we were coming upon mills, and warned me. . . We alighted at the Butte aux Cailles, between the mill Des Merveilles and the Moulin Vieux. The moment we touched land I held by the car with my two hands, I felt the balloon press my head lightly. I pushed it off, and leaped out. Turning towards the balloon, which I expected to find full, to my great astonishment it was perfectly empty and flattened.'

On firm land we leave our voyagers. The curious, who would know how the populace, not so alive to the scientific fame of their country as they have become since the Revolution, established a claim to M. de Rozier's great coat *par voie de fait*, must consult the work of M. de St. Fond. We need hardly observe, that all the measures mentioned in the French voyages are French.

The second voyage was that of MM. Charles and Robert, just at sunset, Dec. 1, 1783, from the Tuileries, in a hydrogen balloon of 26 feet diameter. After coming down, M. Charles re-ascended alone, and was soon 1500 toises high, or nearly two miles. He saw the sun rise again, and as he says, 'I was the only illuminated object, all the rest of nature being plunged in shadow.' A small balloon, launched by Montgolfier just before the ascent, was found to have run a totally different course; which first gave rise to the suspicion of different directions in the currents of air, at different heights.

The third voyage, from Lyons, January 19, 1784, was made in the largest *montgolfier* yet constructed (102 feet diameter, 126 feet high) by seven persons, among whom were J. Montgolfier and M de Rozier. It had been intended for six only, and these were found too many, but no persuasion could induce any one to abandon his place. The instant after the ropes had been cut, a seventh person jumped in. A rent in the balloon caused it to descend with great velocity, but no one was hurt.

February 22, 1784, a small balloon, launched by itself from Sandwich, crossed the Channel, and was found nine miles from Lisle: it went above thirty miles an hour.

March 2, 1784, M. Blanchard made his first ascent from Paris in a hydrogen balloon. He added wings and a rudder, but found they were useless. He first carried a *parachute* or open umbrella, attached above the car, to break the fall in case it separated from the balloon.

April 25, 1784, MM. de Morveau and Bertrand ascended 13,000 feet (English) at Dijon. Some effect was found, they thought, to be produced by the use of oars.

May 20, 1784. Confidence in the balloon so far established that M. Montgolfier, two other gentlemen, and four ladies, ascended, the balloon being confined by ropes. A lady, Madame Thible, ascended with only one other person in a free balloon, at Lyons, on the 4th of June.

December 26, 1784, Mr. Boulton (well known as the partner of Watt) constructed a balloon, to which a match and serpent were attached, that the gas might explode in the air. The object was to see whether the reverberating growl of thunder is caused by echo or by successive explosions. The point remained unsettled owing to the shouting of the people; but those who did hear it thought it growled like thunder.

November 25, 1783, the first balloon launched in England, from the Artillery Ground, London, by Count Zambeccari. It was filled with hydrogen, and was ten feet in diameter: it was found forty-eight miles from London, near Petworth.

September 15, 1784, the first voyage made in England, by Vincentio Lunardi, accompanied by a cat, a dog, and a pigeon. He started at the Artillery Ground, and landed at Standon, near Ware.

January 7, 1785, M. Blanchard and Dr. Jeffries crossed the Channel, it being the fifth voyage of the former in the same balloon. They set out from Dover, and landed in the forest of Guiennes, having been obliged to throw out all their stock to prevent the balloon falling into the sea.

June 15, 1785, M. Pilâtre de Rozier and M. Romain ascended from Boulogne in a montgolfier of thirty-seven feet in diameter, with the intention of crossing the Channel. They had not been twenty minutes in the air when the balloon took fire: both fell from a height of 1000 yards, and were killed on the spot. July 22, General Money ascended at Norwich; the balloon dropped into the water, in which the traveller remained six hours before he was rescued. In 1807 M. Garnerin ascended from Paris, and landed at, or rather was dashed against, Mount Tonnerre, 300 miles from that place, after running very great risks.

September 21, 1802, M. Garnerin descended successfully from a balloon by means of a parachute, near the Small-pox Hospital, St. Pancras, London. The height from which he descended was so great that he could scarcely be distinguished. 'At first, namely, before the parachute opened, he fell with a great velocity; but as soon as it was expanded, the descent became very gentle and gradual.' (Hutton's *Dict.*, article 'Aërostation,' in which much information may be found.)

Three voyages have been undertaken, since the commencement of this century, for purposes professedly scientific. In 1804, MM. Gay Lussac and Biot ascended at Paris to a height of 13,000 feet, provided with apparatus. The same year M. Gay Lussac ascended alone to a height of 23,000 feet. This is not the proper place to state the experimental results of these ascents [see AIR, METEOROLOGY, and similar articles]; neither voyage offers any remarkable circumstances, except the well-known talents and experimental successes of the two gentlemen named, who are both alive to enjoy a reputation, of which their ascents form but a small part.

In 1806, Carlo Brioschi (died 1833), astronomer royal at Naples, ascended with Signor Andreani, who had previously been the first Italian aëronaut. Trying to rise higher than M. Gay Lussac had done, they got into an atmosphere so rarefied as to burst the balloon. Its remnants checked the velocity of their descent; and this, with their falling on an open space, saved their lives: but Brioschi contracted a complaint which brought him to his grave.

We say nothing of the various methods which have been proposed for guiding the balloon, because none have succeeded. It is now a toy, in which ascents are sometimes made to amuse a crowd. That which was honourable risk, so long as anything could be gained to science, is now mere fool-hardiness, and will continue to be so until some definite object be proposed, and some probable means suggested of attaining it.

BALLOT, a word taken from the French *balotte*, or *ballotte*, signifying a little ball, and used to designate a mode of voting employed upon occasions where it is considered desirable to preserve secrecy in regard to the opinion of each voter. In many cases where any matter is decided by votes, there are good reasons why it should be generally known how each person has voted; but there are other cases in which there may be equally good reasons for allowing the voters to vote by ballot. Voting by ballot, therefore, cannot be called either a good or a bad system of voting, without considering the particular cases in which it is exercised.

The modes of performing this kind of voting vary, in some respects, according to the object to be attained: as for instance, in the case of an election to an office where the choice can fall upon only one candidate, or upon a smaller

number of candidates than are put in nomination, it is usual to deliver lists which are folded so as to conceal the name or names which they bear, and which, in that condition, are placed in a glass, or urn, from which, after the votes are all collected, they are taken and examined, in order to determine in whose favour the greatest number of votes has been given. In cases where a simple affirmative or negative is alone required, the same method is sometimes employed, and then the papers deposited in the urn bear only the word 'Yes' or 'No.' Sometimes the original mode of voting by ballot is more strictly adhered to, and balls are used in one of two ways. One of these ways is to choose in which of two compartments into which the urn is divided, the voter will deposit the ball; the other method is to select the colour of the ball to be employed. In cases where the last-mentioned method is resorted to, each voter is furnished with two balls, one white and the other black; the black ball is used to express a negative, whence comes the expression 'to blackball,' signifying the rejection of a candidate. In determining this point of rejection, no uniform rule is preserved by different bodies. In some societies, or bodies, one ball is made sufficient to negative the election; sometimes a larger number of adverse votes is necessary for this purpose. Other bodies adopt as a regulation some definite proportion between the rejecting and accepting votes, such as one in three, five, ten, &c., whereby to determine upon the admission of the candidate.

This mode of election is now almost universally resorted to in England by clubs and scientific societies, as well as in hospitals for the election of medical officers, and by insurance offices and commercial associations for choosing their managers or directors. The directors of the Bank of England and of the East India Company are thus chosen. The ballot is now used in many English parishes in the annual election of the officers called vestrymen.

In France, voting by ballot is used in the election of members of the Chamber of Deputies, and the same mode of voting is frequently resorted to in the deliberations of the legislative chambers. In determining the acceptance or rejection of the separate clauses of any law, the votes of the members present are taken by the approving party rising up while their opponents remain seated. If, however, twenty members should concur in demanding a ballot, that course must then be resorted to; in every case the ultimate acceptance or rejection of the entire law, with all its clauses, is determined by the ballot.

In the United States of America, almost all public elections are thus conducted. Some of the states (Connecticut, Kentucky, and Louisiana), in which a *vivâ voce* mode of election formerly prevailed, have within the last few years adopted the use of the ballot; in Virginia they still use open voting. It is usual to appoint the same time of the year for the election of various office-bearers in the United States of North America; and we are informed by Mr. Stuart, that when he was at Ballston Spa, the capital of the county of Saratoga, in the state of New York, in November, 1828, an election was held at the same time 'for electors of a president and vice-president of the United States; for the governor and lieutenant-governor of the state of New York; for a senator and representative to the congress of the United States; for three members of Assembly of the state of New York; for a sheriff, for four coroners, and for the county clerk.' The votes are taken in each township of every county separately, and the mode of doing this, on the occasion just mentioned, is thus described by Mr. Stuart, who was present. 'The ballot boxes were placed on a long table, at which half a dozen of the inspectors or canvassers of voters were seated. The voters approached the table by single files. Not a word was spoken. Each voter delivered his list when he got next to the table, to the officers, who called out his name. Any person might object, but the objection was instantly decided on, the officers having no difficulty, from their knowledge of the township, of the persons residing in it, and to whose testimony reference was instantly made, in determining on the spot whether the qualification of the voter was or was not sufficient. The county canvassers for the different townships of the county afterwards met and made up their returns for the county, and thus, in a state far exceeding Scotland in extent, and almost equalling it in population, the votes for the chief magistrate of the United States and his substitute, for the governor and lieutenant-governor of the state, for a senator and representative to congress, for three representatives to the state of New York, for four coroners, a sheriff, and a clerk to the county, were taken, and the business of the election finished with ease, and with the most perfect order and decorum, in three days.'

BALLSTON SPA, a town in the state of New York, about 167 miles north of the city of New York, and 23 miles north of Albany. This town was formerly in Albany county, but is now in Saratoga county. It is much frequented on account of some medicinal springs, the waters of which are found to be serviceable in dyspeptic cases, for obstructions, stone and gravel, and in cutaneous diseases. The springs are in the bottom of a valley, which forms a kind of basin, fifty acres in extent. The water is remarkably limpid. It contains iron, common salt, and lime. When fresh from the springs it is brisk and sparkling, and when drunk has a slightly exhilarating effect: it is, at the same time, cathartic, diuretic, and sudorific. The water, as it flows from the springs, is remarkably cool, so that when the thermometer has stood at 86° in the open air, and the water of a running brook near has indicated 79°, it stood at 51° in one of the springs which was exposed; and in another, from which the rays of the sun were excluded, at 49°.

The soil in the vicinity of the springs is sandy and unproductive; almost the only vegetation being pine-trees, scrub-oaks, and fern. Ferruginous and cupreous pyrites have been found in the surrounding hills. The Kayaderosseras river, a stream thirty feet wide, runs through the town, and adds to the natural beauty of the spot. In 1830 the permanent population of the town was 2113 inhabitants (Thompson's *Alçedo*; Stuart's *Three Years in North America*; and *Companion to the North American Almanac*.)

BALLY, BALI, or LITTLE JAVA, an island separated from the eastern extremity of Java by a strait called the Strait of Bally: it is situated between the 8th and 9th degrees of S. latitude, its southern promontory being in 8° 40′ S. lat. and 115° 20′ E. long. The island is 70 miles long from east to west, and its average breadth is 35 miles. No bottom is found with 480 feet of line in the narrowest part of the strait which separates Bally from Java.

The geological features of Bally are the same as those of Java. The strait which divides them is very narrow in some parts, and the spring tides pass through it at the rate of six miles an hour. The coast throughout is difficult of approach, and has not a single harbour or even good anchoring ground. The country is mountainous, and rises gradually from the north and south coasts towards the interior for the distance of about ten miles, where a ridge of mountains occupies the centre, and extends through the island from east to west: at the eastern extremity is a volcanic mountain called the Peak of Bally.

There are numerous small streams and rivulets running from the mountains to the coast on all sides, and affording abundant opportunity for irrigation, by which means the lands are rendered highly productive.

The chief vegetable productions of Bally are rice, maize, sweet potatoes, and cotton. Cocoa-nuts, oranges, and citrons are also very abundant, but are not cultivated. No part of the rice produced is allowed to be exported, but in years of abundance the surplus produce is stored in granaries on the tops of mountains, against a time of scarcity. Great numbers of cattle and swine are maintained, and, notwithstanding the prevalence of the Hindu religion, form a large part of the food of the common people. Oxen are sold at a very low price; a pair of them, broke in to the yoke, may be bought at from six to eight dollars. In addition to the cotton grown on the island, a further quantity is imported from Sumbawa, and the whole is spun and a great part woven by the females. Cotton yarn and cloths are purchased by the Chinese traders who visit the island.

The external trade of the island is almost entirely carried on by Chinese and by prows from the island of Celebes. Besides the cloths and cotton yarn already mentioned, the traders of Bally furnish cocoa-nut oil, edible birds'-nests, hides, and a few other trifling articles, receiving in exchange opium, betel-nuts, ivory, gold, and silver.

A considerable export trade in slaves was also carried on formerly, nor has it yet entirely ceased, although it is much diminished: as many as 1000 have been sent off the island in one year. These have consisted of prisoners made in war, persons who have attempted to emigrate contrary to the laws, insolvent debtors, and thieves. The prices for which these slaves have usually been sold are, for males, from

10 to 30 dollars each, and for females from 50 to 100 dollars. The Chinese traders have been the buyers.

The entire island is said to have been formerly under one chief. It is now divided into eight independent states, each governed by a despotic rajah. The population of the whole island has been variously stated at 600,000 and 800,000. No computation has been made by actual enumeration, but only an estimate founded on the number of males whose teeth have been filed, a ceremony which is performed on their arriving at puberty. This number is stated roundly as being 250,000 in the aggregate, according to which the whole population should amount to somewhat more than the largest number here mentioned. The Balinese are a finer race of men than the Javans, and indeed are superior in stature and muscular strength to the generality of Eastern islanders. It has been supposed that Bally was originally peopled from different parts of Celebes.

By far the largest part of the inhabitants are Hindus, subdivided into the four great castes of Brahmins, Kshatrees, Vaisyas, and Sudras: there are a few Buddhists. The Brahmins are said to retain their faith in its purity, but the remaining three castes of Hindus have a mixture of idolatry with their worship, and have set up tutelary divinities, the personification of the elements or of some striking natural object, so that every village or mountain has its peculiar god. The Brahmins are viewed with great respect by the other castes, and are intrusted with the administration of civil and criminal justice. Women are held to be on an equality with men, and are treated with consideration, so that they are not called upon, as among many other half-civilized people, to perform degrading offices of labour. The people are also, in a remarkable degree, free from the vices of drunkenness and libertinism, but are much addicted to gaming and cock-fighting.

The practice of women sacrificing themselves at the obsequies of their husbands or chiefs is very common in Bally; but it is worthy of remark that female Brahmins do not follow this custom, which is most frequently observed among the Kshatrees and Vaisyas. Sir Stamford Raffles mentions that when one of the late rajahs died, seventy-four women mounted the funeral pile with the body.

The revenues of the princes, or rajahs, are derived in only a very small part from landed possessions, the greater portion being made up of a share in the produce of the lands of their subjects. The demand for this tribute is made on the ground that being the owners of the streams on which the farmers greatly depend for the productiveness of their crops, the rajahs may, if they please, prevent the irrigation of the fields: according to Mr. Crawford, the share exacted by the rajah is usually about fivefold for the seed sown.

No European power has ever made any permanent settlement on the island. In 1814, in consequence of an insult offered by the brother of one of the rajahs to the British post at Blambangan in Java, some English troops were sent to Bally, and during some time occupied the town of Blelling. (Raffles's *History of Java*; Crawford's *Indian Archipelago*.)

BALLYSHANNON, a town in the county of Donegal, in Ireland, on the north side of the river Erne, over which there is a handsome stone bridge of fourteen arches, connecting Ballyshannon with that part of it called the Purt. It is the principal town in the county, and had the right, before the Union, of returning two members to the Irish parliament. It was made a corporation in 1611, and possessed various peculiar privileges. It has been gradually rising in importance since the beginning of the present century, and would, from the advantages of its situation, and other causes, have done so more rapidly, but for the badness of its harbour. When the wind blows off Teeling Head, which it does a considerable part of the year, it is highly dangerous for vessels to attempt to enter the harbour. The danger chiefly arises from two banks, which are called the Summer and Winter Bars. A little below the bridge is a beautiful and most picturesque cascade. (See Seward's *Topographia Hibernica*.) The fall is down a ridge of rocks, twelve feet high at low water. This is considered one of the principal salmon leaps in Ireland. The great quantity of water adds much to the effect of the fall. Below the cascade the river is navigable at the flow of the tide by vessels of forty or fifty tons burthen. The number of salmon taken at the fall is so great, that the fishery brings in 1000*l.* a year. The salmon are exported by the person who rents the fishery to the London and Liverpool markets. There is also an eel fishery at the same place, which lets at from 350*l.* to 400*l.* a year. There are several good houses in the town, and two comfortable inns. The parish church, a handsome edifice, which is on the summit of the hill on which the town is built, was erected in 1720. The market-house is situated in the centre of the town, and above it is the assembly-room, in which the petty sessions are held. Ballyshannon is a military station. There is an extensive distillery in the place; and several other branches of industry, which were not formerly attempted in it, have of late years been engaged in, and, on the whole, with fair success. There is a school in the town which is partly supported by Colonel Robinson's fund. In the Purt there is another, which belongs to the Hibernian Society. There is, besides, a private classical school, a Roman Catholic chapel, and a Presbyterian meeting-house. About a mile from the town are the ruins of the antient abbey of Asheroe, which stand on a very curious rock of secondary limestone. The antiquity of the abbey is not known. The town has four annual fairs which are held on the 4th of April, the Tuesday before the 11th of June, 18th September, and the Tuesday after the 11th November. The distance from Dublin is 108 miles N.W. in a straight line. By the road the distance is 127 miles. In 1821 the population was 2482; in 1831, 3775. (Camden's *Britannia*; Wakefield's *Account of Ireland*, vol. ii.; Beaufort's *Memoir of a Map of Ireland*; Seward's *Topographia Hibernica*; Carlisle's *Topographical Dictionary*; *Parliamentary Papers*.)

BALME, LA. This name, which is given to several caverns supposed to have served as sepulchres, is derived from a word, *balma*, used by the Latin writers of the middle ages to denote a sepulchral stone, a tomb, or an excavation in a rock; as also 'a hill stretching from valley to valley in mountainous countries.' (Du Cange, *Glossarium ad Scriptores mediæ et infimæ Latinitatis*.)

One of the caverns which bears this name is in Dauphiné (now in the department of Isère); it is accounted one of the wonders of that country, and draws the attention of all travellers. It is in the arrondissement of La Tour-du-Pin, and near a village (on the left bank of the Rhone, about the junction of the Ain with that river), which has derived from it the name of *Notre Dame de la Balme*. It is in a very lofty mountain. The first apartment is well lighted, owing to the entrance being large, and has been formed into a chapel of the Virgin, once much resorted to by pilgrims. From the first apartment an inconvenient passage leads to a large apartment, from which two galleries proceed, ornamented with stalactites of various forms. In one of these apartments or galleries leading to the right (called the Bats' Gallery, *La Galerie des Chauves-souris*), is a reservoir formed of the same substance as the stalactites, filled with very clear water, which trickles along a mass of similar stalactic matter. In an apartment leading to the left is a stream which flows from an opening or passage, the length of which is not known. The stream disappears as soon as it issues from this opening, and passing by a subterraneous channel under the grotto, reappears near the entrance, and takes its course to the Rhone, which is not far off. A clergyman of La Balme, with some of his friends, traced this stream three miles up the narrow passage from which it comes forth into the grotto, and ascertained that it had its rise in a round and spacious opening, from which the water gushed out copiously. A previous attempt to discover the source of this stream had been made without success by order of Francis I. when in Dauphiné. The rock into which the grotto of La Balme penetrates is calcareous, hard, striking fire with steel, and of a grey colour. It incloses in some of its strata the relics of shells and other marine productions.

There is a mountain, *La Balme*, in the department of Isère, about eight miles east by south of Grenoble, and one near the town of Cruseille, in the duchy of Savoy. In the latter is a deep, narrow, and winding cavern, supposed to have been formed by the passage of water through a crevice which it has enlarged to its present dimensions. Another mountain in the Savoyard Alps bears the same name. It is in the canton of Yenne, a town on the Savoyard bank of the Rhone, where that river separates Savoy from France.

The same name La Balme is incorporated with those of several places in the neighbourhood of the Alps and the

range of the Jura; the apparently kindred names of Baume and Beaume prevail chiefly in the south-eastern parts of France.

BALNAVIS, HENRY, of Hallhill, an individual who, by his talents and probity, raised himself from obscurity to a situation of the first importance in the state in Scotland. He was born of poor parents in the town of Kirkaldy, county of Fife, whence, after obtaining a little learning at one of the schools at St Andrew's in the same county, he proceeded abroad, and when at Cologne got admission into a free school there, where he received a liberal education, together with instruction in the principles of the Protestant faith. He returned to his native place towards the latter end of the reign of King James V., and having applied himself to the study of the Roman jurisprudence, for some time acted as a procurator in the courts of the then metropolitan city of St. Andrew's. About the same time he married Christian Scheves (a relation perhaps of the ecclesiastic of that name), and on the 10th August, 1539, he had a charter to himself and his said spouse of the lands of Easter Collessay, now called Hallhill, county of Fife, from which he thereafter took his designation, according to the Scottish custom. From St Andrew's he removed to Edinburgh, where he was one of the earliest friends of the Reformation; and notwithstanding the jealousy of the papal clergy, who hated him for his religious sentiments, his reputation introduced him to the court. On the 31st of July, 1538, he was appointed a Lord of Session. Whether he had previously practised in any of the courts of Edinburgh, or was an advocate of the College of Justice, does not appear, the records of that period being defective: the Court of Session, it will be recollected, was instituted only a few years before, and at its institution the only literary qualification for the bench was a knowledge of the Roman laws, in which Balnavis was skilled. He sat in the parliament of 4th November, 1538, by special commission; and in the subsequent parliaments his name often occurs. In January, 1541, he was joined in a commission to adjust one of the frequently-recurring disputes about the Borders.

On Mary's accession to the Scottish throne, in 1543, the Earl of Arran was made Regent of the realm. Balnavis, who is said to have powerfully contributed to Arran's appointment, was then also promoted to the situation of Secretary of State. In raising the timid and yielding Arran to power, however, Balnavis and his party erected a support which transfixed them when they leant upon it: a surer stay they found in the public press. He was instrumental to the passing of the important act, introduced into the parliament by the Lord Maxwell, and passed notwithstanding the opposition of the Lord Chancellor and all the prelates, for allowing the Holy Scriptures, 'baith the New Testament and the Auld, to be translated and read by the people in the vulgar tongue.' In May of the same year he was one of the commissioners despatched by the parliament to the English court to treat of a peace with England, and of a marriage between Prince Edward and the young Queen of Scotland, both of which were quickly agreed to, except as to the time of Mary's passage into England, on which point new instructions were given and additional commissioners appointed. We learn from the Scottish reformer (Knox, *Hist.* 35) how fondly those treaties were regarded by the Protestants, and that by such as desired tranquillity to their country they were viewed as the special favour of heaven towards Scotland. Cardinal Beaton, however, who had just succeeded to the Chancellorate, saw in them the ruin of the religion to which he clung; he was opposed to the match, and his zeal and influence drew all the Romish clergy to prefer an alliance with Papal France rather than with Protestant England. 'They raged in furie as if they had been bye their minds,' says Pitscottie, 'and rested never till the contracts were dissolved in plain parliament.' Balnavis also was dismissed from his office by Arran, at the instigation of the Regent's base brother, John, Abbot of Paisley, a bigoted Catholic, just returned from France, and on whom the Cardinal, sure of his influence over the timorous Regent, immediately conferred the privy seal, and soon afterwards the post of Lord Treasurer. The same year Balnavis, together with the Earl of Rothes and the Lord Gray, was seized at Dundee, and conveyed to the castle at Blackness, on the Forth, where they in all probability lay immured, till the arrival of the English fleet in the river, in the month of May following, set them at liberty. It has been insinuated that Balnavis entered into the conspiracy at the court of King Henry for the murder of Beaton, but of this there is no evidence, though unquestionably he took refuge in the castle of St Andrew's, like Knox and several others who were not engaged in the conspiracy, and in all likelihood he participated also in the reformer's sentiments on the fall of 'the bludie boucher.' (Knox, *Hist.* 4.)

On the accession of Edward to the English throne, in January, 1547, the conferences for a peace and marriage were renewed; and on the 9th of March following, Balnavis and others bound themselves to endeavour to the utmost of their power to bring about the union, and also, for the more effectually securing that object, to keep possession of the castle of St Andrew's. Edward, on the other hand, gave them pecuniary assistance and a military force to defend the place—supplies susceptible no doubt of the construction which some writers have put upon them, but certainly received by Balnavis in the best faith, and not for private or personal aggrandisement, but for the public weal. On the 15th of the same month also, the parties first above mentioned bound themselves to Edward to endeavour to get Mary into England to be educated and brought up there until her marriage, and on the latter event taking place, to deliver up the castle of St Andrew's to the English monarch. In August, however, a fleet and land forces from the King of France appeared before St Andrew's, in support of the Regent and the papal faction; and those within the castle were, after a vigorous defence, at length obliged to surrender. They were conveyed to France, and, in direct violation of the articles of capitulation, thrust into the castle of Rouen, in Normandy, as prisoners of war. Here, as we are expressly assured by Knox, who was one of the captives, solicitations, threats, and even violence, were employed to make them recant their Protestant opinions, but to no purpose. Knox narrates a humorous incident which took place on one of those occasions, which, as it illustrates the courageous spirit that animated the little band, may be here related, though we are not certain who was the hero of the piece. One day an image of the Virgin was brought into one of the galleys and presented to a Scots prisoner that he might kiss it. He desired the bearer to be off, for that such idols were accursed, and that he would not touch it. '*But you shall!*' said the fellow, thrusting the image into his arms. The Scotsman took hold of the Virgin, and then dashed her into the river, saying, 'Let our ladye now save herself: she is light eneuch, let her learn to swim.' While in prison Balnavis employed himself in writing a treatise on justification, and the works and conversation of a justified man. Knox was so pleased with the performance that he divided it into chapters, added some marginal notes and an epitome of its contents, and to the whole prefixed a recommendatory preface. The manuscript disappeared, however, for some time; but after Knox's death it was discovered by his servant Richard Bannatyne, at the house of Cockburn of Ormiston, and printed anno 1584, under the title of *Confession of Faith, containing how the troubled man should seek refuge at his God: compiled by M. Henry Balnavis, of Halhill, one of the Lords of Council and Session of Scotland, being a prisoner within the walls of the old pallace of Roan* (*Rouen*) *in the yeir* 1548. T. Vautrollier, Edin., 1584.

In 1554 Arran resigned the regency, to which the Queen Dowager, Mary of Guise, was then raised, and she, to soothe her Protestant supporters, recalled the laird of Grange and the other conspirators from their banishment, and the forfeiture which had been pronounced against Balnavis was also rescinded. In the proceedings of the people of Scotland which soon afterwards followed, Balnavis took a leading part for the reformers, and in September, 1559, he was secretly despatched by the Lords of the Congregation to Sir Ralph Sadler, the English plenipotentiary at Berwick, from whom he obtained an aid of 2000*l.* sterling for the Protestant party. It seems to have been contemplated to send him to England again for assistance, but Randolph, the English resident, discouraged the mission, and he was not appointed. It appears, however, that Cockburn of Ormiston was sent, and that he received an aid of 1000 crowns; but the Earl of Bothwell, at the queen's instigation, lay in wait for his return, attacked him, dispersed his followers, and carried off the money. Destitute of funds, the ruin of the Protestant party seemed to be at hand; and, indeed, their resistance was for some time spiritless and unsuccessful. But the tide of prosperity again flowed in

their favour, and in the parliament of 1560 the reformed religion was established by law.

On the 11th February, 1563, Balnavis was re-appointed a Lord of Session, in the room of Sir John Campbell, of Lundy, deceased; and on the 29th December, same year, he was named by the General Assembly of the Church of Scotland one of the commissioners appointed by that venerable body to revise the *Book of Discipline*. He is said by Keith (*Hist.* 375) to have been one of the assessors to the Lord Justice General on the trial of the Earl of Bothwell for the murder of Darnley; but this is extremely doubtful. The next year he attended the Regent Murray as one of the commissioners from Scotland to York in relation to the charges against Mary for the same murder; and he was one of the two afterwards sent to London on the part of the Regent in the same matter.

According to Mackenzie (*Lives*, vol. iii. p. 147), Balnavis died in 1579; yet in the Pitmedden MS. we find it stated that on the 20th October, 1570, Macalzean, of Clifton Hall, was appointed a Lord of Session in the room of Henry Balnavis, deceased.

Besides the treatise above mentioned, Balnavis wrote a short poetical piece, entitled *Advice to a Headstrong Youth*, which the Scottish poet, Allan Ramsay, has transcribed into his *Evergreen*.

(See Rymer's *Fœdera*, vol. xiv. pp. 781, 783, 786, 792; vol. xv. pp. 142, 144; Sadler's *State Papers*, vol. i. pp. 83, 430; Balf. *Ann.* vol. i. p. 305; *Hist. of King James VI.*, p. 35; Knox, *Hist.* pp. 35, 41; Keith, *Hist.* p. 529; M'Crie's *Life of Knox*, p. 39, note; *Catalogue of Senators of the Coll. of Just.* p. 60, seq.)

BALSAMI'FLUÆ, a natural order of plants first indicated by Theodore Nees v. Esenbeck, defined by Dr. Blume in his *Flora Javæ*, and adopted by Dr. Lindley in his *Nixus*. It is intermediate between the *Willow* and *Plane tribes*, from the former of which it differs in having a two-celled fruit and downless seed; and from the latter in having numerous seeds. It consists of lofty trees, flowing with balsamic juice, bearing the flowers in small scaly heads, without either calyx or corolla, and having the stamens in one kind of head and the pistils in another. The different species yield the resinous fragrant substance called liquid storax, which is so much prized by the inhabitants of the East. The whole order consists of but a single genus, called LIQUIDAMBAR [which see].

BALSA'MINA, one of the only two genera of which the natural order *Balsamineæ* consists. It differs from *Impatiens* in having all its anthers two-celled, its stigmas distinct, and the valves of its fruit curling inwards when bursting. There are numerous species, several of which have very handsome flowers: they are chiefly found in the damper parts of the East Indies; but the only one that is much known in Europe is the common garden balsam, *Balsamina hortensis*, which, in its double state, has been an object of cultivation since the earliest records of modern horticulture. This plant, which is supposed to be found wild in the mountainous parts of Silhet, in the form of what botanists call *Balsamina tripetala*, is one of those species which not only has a tendency to vary with double flowers, but has also the power of continuing to produce them when renewed from seeds. On this account it particularly deserves the attention of the cultivator, especially as it may be brought by art to a state of beauty equalled by few plants. All that is necessary in order to secure fine balsams is, first, to save the seed with great care from the finest and most double flowers only, throwing away all whole-coloured and single blossoms; and, secondly, to cultivate the plants with a due regard to the natural habits of the species. A native of the hot, damp, shady woods of Silhet, it is incapable of bearing much drought or bright sunshine. It should, therefore, be raised in a hot-bed, treated with great care as a tender annual, grown in rich soil, sheltered from excessive sunlight, and kept constantly in a damp atmosphere, but freely and fully ventilated. It should not, however, be stimulated into extremely rapid growth until the plants have become stout bushes and the flowers have grown to the size of small peas. At that time the plants should have all the heat and moisture they can bear, and the most brilliant flowers the plant is capable of producing will be the result: in the latter stage of growth great care is still to be taken to expose the plants fully to air.

BALSAMI'NEÆ, a small, natural order of plants belonging to the Gynobasic alliance of Dicotyledons, and principally distinguished from Geraniaceæ by their many-seeded fruit and unsymmetrical flowers. They are succulent herbs, most abundant in hot countries, with simple, opposite, or alternate leaves, and showy flowers, with a spur to their calyx. They have no sensible properties of importance, but are the ornament of the damp or swampy places in which they grow wild. The order is remarkable for the elastic force with which the valves of its fruit contract and reject the seeds.



[Impatiens Noli tangere.]

a a calyx magnified, with one of the petals; *b*, the front of an anther, *c*, the back of the same, *d*, an ovary cut across; *e*, the ripe fruit; *f*, the same in the act of bursting and scattering its seeds; *g*, a seed; *h*, the same cut transversely.

BALSAMODEN'DRON, a genus of Oriental trees belonging to the natural order Amyrideæ, and remarkable for their powerful balsamic juice. They have small green axillary diœceous flowers, a minute four-toothed persistent calyx, four narrow inflected petals, eight stamens inserted below an annular disk, from which eight little excrescences arise alternating with the stamens, and a small oval drupe with four sutures, and either one or two cells, in each of which is lodged a single seed. The leaves are pinnated, with one or two pairs of leaflets, and an odd one. Five species are mentioned by botanists, the best account of which is by Professor Feé, from whom we gather the following particulars.

Balsamodendron opobalsamum, the Balessan of Bruce, has a trunk from six to eight feet high, furnished with a number of slender branches ending in a sharp spine. The leaves consist of from five to seven sessile, obovate, entire, and shining leaflets, within which are placed the small flowers, which grow in pairs on short slender stalks, and are succeeded by small oval plums. From this is distinguished the

Balsamodendron Gileadense, supposed to be the βαλσάμου δένδρον of Theophrastus, which is described as a middle-sized tree, with the leaflets growing in threes, and the flowers singly. But it is probable that, as these balsam trees are found in the same places, and produce the same substance, they are, in fact, nothing but varieties of the same species. They both produce three different substances; 1. *Balm of Mecca*, or *of Gilead*, or *Opobalsamum*: 2. *Xylobalsamum*; and, 3. *Carpobalsamum*; the first obtained from the trunk of the balsam trees by simple incision; the second by boiling the branches and skimming off the resin as it rises to the surface of the water; and the third, by simple pressure of the fruit. They are no longer met with, even in gardens, about Gilead in Palestine.



Myrrh, a gum-resin, celebrated from all antiquity for its aromatic and fragrant properties, is yielded by two other species of this genus.

Balsamodendron Myrrha is a small scrubby tree found in Arabia Felix, near Gison, scattered among species of acacia, euphorbia, and moringa. Both its wood and bark have a strong and remarkable odour. The branches are stiff, short, and spiny; the leaves composed of three obovate, unequal leaflets, with distinct crenatures, and the fruit a narrow, oval, furrowed plum, surrounded at the base by the persistent calyx. Its flowers are unknown to botanists.

Balsamodendron Kataf has fewer spines, and downy and more distinctly serrated leaves. Its wood, which is red and resinous, is a common article of sale in Egypt.

Whatever may be the product of the last species, which Forskühl states to produce the myrrh of commerce, it is now certain that this substance is yielded by Balsamodendron Myrrha, which Ehrenberg found on the frontiers of Nubia and Arabia, bearing a substance identical with the myrrh of the shops. It is, therefore, no longer to be doubted that the suggestion of Bruce, that it is the produce of a kind of mimosa, a most improbable circumstance, by the way, originated in some incorrect observation.

Balsamodendron zeylanicum is mentioned as a fifth species, producing oriental elemi, which is very different from the American kind; but of this too little is known to enable us to do more than advert to its existence.

Myrrh, a natural gum-resin, the source of which was long doubtful, was observed by Ehrenberg to exude from the bark of the above-mentioned species of balm, much in the same way as gum tragacanth exudes from the *astragalus verus*. It is at first soft, oily, and of a yellowish-white colour, then acquires the consistence of butter, and by exposure to the air becomes harder, and changes to a reddish hue. As met with in commerce, it is of two kinds, that which is called *myrrh in tears*, and that called *myrrh in sorts*. The former, called also *myrrha electa*, occurs in different-shaped pieces, often of a roundish or angular form, and variable size, but generally small, of a reddish yellow or brownish hue, externally rough, and often covered with a fine powder. In other pieces, the surface has a shining aspect, which is said to be owing to the action of alcohol. The fracture is vitreous or conchoidal. It is in general only partially transparent at the edges; when perfectly transparent, it is of suspicious quality. The smell is peculiar and rather disagreeable, the taste is bitter and very unpleasant.

Myrrh in sorts is the term applied to various inferior and adulterated kinds. These are generally in much larger pieces than that described above, from which they differ in physical appearance as well as chemical qualities.

The alcoholic tincture of the best myrrh, mixed with equal parts of nitric acid, becomes red or violet. The tincture of the false myrrh (of Bonastre) so treated becomes turbid and yellow, but not red. The taste of this false myrrh is very bitter, but the smell is that of turpentine. Another false kind is in its inner portion almost without bitterness, but the outer portion is often moistened with tincture of myrrh, or entirely covered over with some of the genuine. Dr. Von Martius mentions a *white myrrh*, which has a very bitter taste like colocynth, and an external appearance like ammoniacum; it is probably ammoniacum, treated with tincture of colocynth. Another false myrrh may be distinguished by its transparency and less bitter taste.

Bdellium is often substituted for myrrh, from which it may be distinguished by being generally in larger angular pieces, of a dark-brown hue, scarcely transparent at the edges; the odour fainter and more agreeable than myrrh. It softens slightly with the heat of the hand, while myrrh becomes drier. It contains more bassorine, and possesses some degree of acidity. It melts almost entirely in the mouth, while genuine myrrh, when chewed, adheres to the teeth, and imparts to the saliva a milky colour.

East Indian myrrh is in large pieces, altogether opaque, frequently covered with a brownish-white powder. The source of this is unknown, but it is conjectured by Louriero that a tree called *laurus myrrha*, a native of Cochin China, yields it. The so-called myrrh of Abyssinia, which is *gum opocalpasum*, is yielded by the *acacia gummifera* (Wild.), called also *Inga Sassa*, and is probably a variety of the gum of Bassora or Bagdad.

A portion of myrrh brought from Arabia by Ehrenberg, analysed by Brandes, yielded

Resin, soluble in ether	22
Resin, insoluble in ether	5
Gum	54
Bassorin	9
Volatile oil (myrrh oil), which is heavier than water	2

Traces of salts, malates, benzoates and sulphates.

Its specific gravity is 1·360. Water dissolves about 66 parts, one-third of which is deposited upon standing. Alcohol dissolves the remaining 34 parts; but on the addition of water, it becomes opaque and milky, but without any precipitate. Acetic acid and milk also dissolve it.

Myrrh, though containing a volatile oil, seems to act more from its bitter qualities, which approach to the character of a stimulant tonic. It increases the energy of the whole frame, giving solidity to the solids, and greater consistency to the fluids. The secretions of the mucous membranes particularly are improved by it, and diminished in quantity when excessive. Its introduction into the stomach is followed by a sense of warmth, which diffuses itself over the whole abdomen. The appetite is increased, and the digestive process is much facilitated, especially where there is weakness and torpidity of the intestinal canal, sometimes accompanied by too copious mucous secretion, (constituting what is termed *diarrhœa mucosa*.)

The mucous membrane of the lungs is acted upon in the same way; hence myrrh is very useful in affections of languid and feeble persons, who are unable to expectorate the abundant fluid secreted by the air-tubes (bronchia.) For the humid and chronic cough of old people it is very serviceable, especially if given along with sulphate of zinc. For the cure of a cough which often occurs during pregnancy, and even continues after abortion, along with oxide of zinc, it is well-suited; as well as for hysterical coughs, in which last it may be given along with cinchona bark, or preparations of iron.

From its cleansing power in the case of external ulcer it has been recommended in consumption (*phthisis pul-nalis*); but in the early stages, or even the later, if be much hectic fever, it is quite inadmissible; allowable, it is only useful by imparting streng torate, having no power to cure the disease.

In amenorrhœa occurring in feeble perso use, along with aloetic medicines and pre

It is best given in substance in the cases in which it can be employed; cleansing ulcers, as well as a wash to ulcerating from pressure (as in patien bed, from fever, fractured limbs, or oth ture is preferable.

Myrrh is an ingredient in a great man

The produce of the *Balsamodendron* called a balsam, and denominated balsam

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of Gilead, is not entitled, chemically, to rank as such, being an *oleo-resin* It is of two kinds, that obtained by spontaneous exudation, and that which is obtained by boiling the branches. The former is so highly prized in the East, and so expensive, that it is never brought to Europe That which is obtained by boiling is of different qualities and value, according as the boiling is continued for a short or long time When for a short time only, the substance which floats on the surface is highly esteemed, and almost all of this quality is consumed in Asiatic Turkey and Egypt The variety procured by long continued boiling is sent to Europe in small conical, leaden bottles, the mouth of which is closed with a leaden stopper, and covered over with bladder The fresh balsam is of moderate consistence, of a light yellow colour, odour agreeable, the taste bitterish, aromatic and heating; specific grav 0 950 When dropped upon water it spreads out into a thin film, which may be skimmed off the surface with a spoon When exposed to the air for some days, it loses this property as well as its fine smell It has been described by Strabo (b xvi p 763 'The balsam is a shrub of a bramble appearance or kind, like the cytisus and terebinthus and possesses aromatic properties They cut the bark and catch the juice that exudes in vessels the juice resembles oily milk When put into shells it hardens or assumes consistence It has wonderful powers in curing headaches incipient defluxions (he means catarrhs), and dimness of the eyes it is accordingly high priced The xylobalsamum is also used as an aromatic

Numerous fabulous statements are recorded in writers on medical substances respecting this article such for example, as the mode of judging of its purity by dipping the finger in it, and then setting fire to it when if it burns without causing pain, it is considered pure From its high price it is often adulterated with sesamum oil the produce of the *Pinus balsamea* and *P Canadensis* Chian turpentine and even tar A portion of the purest kind, analysed by Trommsdorff, yielded

Volatile oil	30 per cent
Resin (with some extractive)	64 ,
Resin insoluble in alcohol, a small quantity	

It burns without leaving any residuum

Though formerly considered a cure for many diseases, it has now fallen into disuse Any benefit which might be derived from it can be obtained from any of the finer turpentines. Its heating qualities render it very unfit for cases where any inflammatory action exists, whether internal, as consumption, or external, as wounds There is reason to believe that many of the cordials sold under the name of balms contain no portion of Mecca balsam but that the most celebrated of these medicines, called Solomon's Balm of Gilead, consists of cardamums and brandy, which must be even more hurtful than any balsam

BALSAMS The substances commonly included under this title are of various natures first, there are natural balsams, exuding from trees, as those of Peru and Tolu, &c, which contain benzoic acid and resin and these only will be considered at present There are, besides, the balsams of Copaiba, Gilead, &c, these contain no benzoic acid, but are turpentines containing a volatile oil and resin, these will be described as turpentines Lastly, there were in former pharmacopœias sundry very different preparations ranked together as balsams For example, balsam of sulphur, traumatic balsam, &c these, when retained in modern pharmacopœias, are arranged under other forms

Balsams are obtained from certain vegetables, chiefly the *Leguminosæ* or pea tribe, the *Styraceæ* or storax and that section of *Amentaceæ* called *Salicineæ*. ... substances of a resinous nature were formerly ... *balsams*, and turpentines and balsams are still confounded with each other. The term balsam, ... could be limited to such articles as contain *benzoic* ... with a volatile oil and resin. The others, ... volatile oil and resin, should be called ... resins. The true balsams appear to be ... of Peru and balsam of Tolu (yielded ... *Myrospermum peruiferum* and *M. Toluiferum* ... benzoin, from *Styrax benzoin* (*Dryander*), *Styrax officinalis* (*Styraceæ*), and liquid-... *Liquidambar Styraciflua*, and *L. imberbis*

... ings upon the medical uses of balsams are understood to apply only to those specified above To produce their characteristic effects they must be digested and assimilated, on which account they are chiefly administered internally, their external application being followed by very limited action They are with difficulty soluble in the animal juices, so that it is not till after they have been used for some time that the secretions acquire their peculiar odour These facts, taken into consideration along with the enduring nature of their action, point out their greater fitness for chronic than acute diseases.

They may be regarded as stimulants of the secretory and excretory systems, which they rouse to continued action Their influence is greatest over mucous membranes, the secretions from which they render more abundant when deficient, and more consistent when too liquid and of imperfect quality The mucous membranes of the lungs and of the urinary passages seem to be more under their influence than that of the intestinal canal They possess a similar power over the skin, the secretion of which they regulate according to its condition when cool, pale, dry, and in a state of atony, they promote the perspiration but if the weakness be so great that the skin is covered with a cold clammy sweat or of a colliquative kind, the balsamic medicines frequently check its flow

When given in large and long-continued doses, they act upon the vascular system and quicken the heart's action, as well as the extreme or capillary vessels, which last they excite when brought into direct contact with them, as in the case of wounds or ulcers

They possess some power over the nervous system but less over the nerves of animal than of organic life It is in diseases referrible to morbid states of the nerves of organic life that balsamic medicines are most useful, especially when they are in a state of weakness torpor, and imperfect action They act also on the nervous system when over excited calming it and approaching, in this respect to the character of antispasmodics Under this head benzoin is the most powerful and most frequently employed, generally in the form called *pat gone chan*

From what is stated above it is clear that they are unsuited to the beginning or early stages of the diseases in which they are most commonly employed by uninformed persons So long as any acute inflammatory action exists they are decidedly hurtful but after this has subsided they are frequently very beneficial in common colds, to lessen the cough and facilitate the expectoration, in the later stages of hooping cough, and in the humid cough of old or weak persons, *i e* in one of the morbid states popularly called asthma Balsamic medicines are, however, totally inadmissible when the asthmatic symptoms are connected with any organic change of the heart or lungs They may be advantageously employed in the later stages of influenza and suffocative catarrh The early use of paregoric in common colds is frequently ... of much injury.

The external employment of balsams is almost ... pletely banished from modern surgery The evil ... their employment was obvious to the eyes *Friar's balsam, wound balsam, balsam for cuts, &c*, as certain combinations or solutions of balsam of Tolu, storax, and benzoin in rectified spirit were called, had, when applied to recent wounds, the manifest bad effect of stimulating the edges, and interposing a mechanical impediment to their union by *the first intention*, as the direct reunion of divided surfaces is termed by surgeons In this way they were healed by suppuration and granulation, which is a much more tedious process. To some indolent wounds and sores, especially in parts not possessed of much vascularity, their application is sometimes beneficial, Internal wounds and ulcers are in general equally injured by them their vaunted power of curing consumption is only maintained by ignorant and unprincipled persons, who vend their pernicious compounds to the weak and credulous among their suffering fellow-creatures, whom they delude both of health and money.

[For balsam of Canada, see PINUS BALSAMEA; for balsam of Copaiba, see COPAIFERA; and for balsams of Peru and Tolu, see MYROSPERMUM.]

BALTIC SEA is a close sea, which occupies, as it were, the centre of northern Europe, separating Sweden and the Danish islands from Germany, Prussia, and Russia. It extends from 54° to 66° N. lat., and from 10° to 30° E. long.

Its great length and comparatively small breadth give it the form of an extensive gulf, and such it would be considered, if it were not separated from the Atlantic Ocean by the ... and comparatively narrow tract of land which

forms the southern part of the Danish peninsula called Schleswig. It is connected with the ocean by means of a large gulf called Kattegat, which separates Denmark from Norway and Sweden, and by three straits, the Sound, the Great Belt, and the Little Belt, which may be considered as three gates by which the Baltic Sea is entered.

The main body of the Baltic Sea does not lie in one direction. Between Denmark and Prussia it extends from west to east, but between Cape Torhamsudde in Sweden and Cape Brusterort in Prussia it bends to the north, and the remainder of the main body lies nearly due north and south. The 56th parallel divides this main body into two nearly equal parts, but the northern adds considerably to its extent by branching off into three large gulfs, those of Bothnia, Finland, and Livonia.

A line drawn from Swinemünde at the entrance of the Stettiner Haff, about the most southern point of the Baltic, to Torneo, is little less than 900 miles long. The breadth of this sea is not great; and the most western part is the narrowest. Between the Danish islands and the coast of Holstein, and Mecklenburg, it is nowhere more than thirty miles in width, and frequently less. Further to the east it is wider. The island of Rügen is upwards of fifty miles from the southern shores of Sweden. Gradually increasing towards the east, its greatest width is at its bend northward, between Torhamsudde and Brusterort, where it may measure about 150 miles. The main body narrows very little farther to the north, its mean width being always between 120 and 130 miles. But the far-extended limbs of this part are much narrower. The Gulf of Bothnia, which extends to the north for about 400 miles, is only from 30 to 100 miles wide; and the Gulf of Finland, which runs about 280 miles to the east, is not more than from forty to seventy miles in breadth. The smallest of the three gulfs, that of Livonia or Riga, is from twenty to sixty miles wide: but it extends only about a hundred miles to the south-east between Livonia and Courland.

The surface of the whole sea, according to the calculations of German geographers, is upwards of 160,000 square miles.

The southern coast of the Baltic, from the Little Belt to Cape Domesnes, at the entrance of the Gulf of Livonia, is low and sandy, and lined by numerous sand-banks. The beach is covered with small pebbles of granite and porphyry, which, in some places, as at Dobberan in Mecklenburg, have formed walls of considerable height and extent; in many other parts there are downs, or sand-hills. This part of the coast is characterized by fresh-water lakes called Haffs, which are separated from the sea by very narrow and sandy but somewhat elevated tracts of land called Nehrungs. Cliffs and rocks begin to appear near Cape Domesnes, but the shores of the Gulf of Livonia are low, and commonly sandy, though in a few places interrupted by a rocky beach. The rocky coast becomes general at Cape Spinthambre, at the entrance of the Gulf of Finland; and it preserves this character along this gulf and that of Bothnia, and even to the south of the latter to the entrance of the Sound of Calmar, which separates the island of Œland from the continent. With the exception of the innermost recesses of both gulfs, which are low and sandy, the whole of this extensive coast is rocky, though commonly low, rising in very few places to more than fifty feet. Along this coast there are numerous cliffs and rocky islands of small extent, called by the Swedes skär (pronounced share), which render access to its ports as difficult as it is rendered on the southern shore by the numerous sand-banks. The shores of the Sound of Calmar are sandy and low, but at Cape Torhamsudde rocks appear again, and continue westward to Solfvitsborg, with a considerable elevation. The remainder, or the coasts of Scania, are of moderate height, but not rocky.

The basin of the Baltic Sea is of considerable extent. On the south it receives, by the Oder and Vistula, the drainage of countries which lie 300 miles and upwards from its shores. On the east it does not extend quite so far; yet the Niemen and the Düna, near their sources, drain countries which are from 250 to 300 miles from the sea. To the north of the Gulf of Finland the basin of the Baltic becomes more contracted, though round the Gulf of Bothnia and southwards to the parallel of Stockholm, it generally extends 150 miles from the coast. It is only at its western extremity, where it approaches the North Sea, that the waters falling into it have a short course, frequently only a few miles. Comparing the extent of country drained by the rivers which empty themselves into the Baltic, with that drained by the rivers which fall in other parts of the ocean, it appears that the basin of the Baltic is one of the most extensive in Europe, and is only exceeded by that of the Black Sea, and even by the latter not to any large amount. The drainage of more than one-fifth of the surface of Europe goes to the Baltic.

The basin of close seas is generally bounded by mountains or high table-lands, as the Mediterranean and the Gulfs of Persia and of Arabia; and, in such cases, the countries lying within the basin are not subject to have their climate materially influenced by that of the countries situated beyond the limits of the basin. But this is not the case with the Baltic. Only a comparatively small part, not one-fourth of the boundary of its basin, is formed by high mountains; the remainder rises to no great elevation above the level of the sea, and sinks with a very gradual and often imperceptible descent towards the sea. By this singular position some of the most distinguishing peculiarities of the sea, as well as of the country about it, may be explained.

Perhaps in no inhabited country on the globe such a quantity of snow falls as in the countries round the Baltic. This phenomenon may be accounted for by the atmosphere of the Baltic being alternately filled with warm moisture, and subjected to a dry piercing cold; and by the frequent and rapid transition from one to the other. The warm moisture is brought by the south-western and western winds from the Atlantic Ocean, over the low peninsula of Jutland, and the equally low plains of northern Germany, as far as Petersburgh and the forest of Wolkhonsk, where the Volga rises. Upon a sudden change of the wind to the north-east, east, or south-east, the cold dry air from the frozen shores of the Icy Sea, the elevated countries along the Ural Mountains, or the cold steppes extending to the north of the Caspian Sea, is brought into contact with the moisture, which being suddenly condensed, covers, in the form of snow, the countries round the Baltic. In summer the same causes produce an alternation of rainy and fair weather. To this peculiar character of their climate these countries owe their wealth. Though not endowed with great fertility, the soil being, with very few exceptions, sandy and light, they abound in timber of the best quality; support, in their green pastures, innumerable herds of cattle; and produce abundant crops of grain, which have made these districts the richest granary of the globe. No other portion of the earth approaching so near the Polar Circle can be compared with them in natural wealth.

Some of the peculiar qualities by which the Baltic is distinguished are intimately connected with the climate of its basin. By experiments it has been found that three pounds of water taken from the North Sea contain 747 grains of salt, but the same quantity from the Baltic does not yield more than 389 grains. In general, it is calculated that salt constitutes only from $\frac{1}{50}$th to $\frac{1}{75}$th part of the waters of the Baltic: but here also some variations exist. The northern parts, especially the Gulf of Bothnia, contain less than the others; and the amount varies greatly according to the seasons. At midsummer only a ton of salt can be obtained from about 300 tons of sea-water taken from the Gulf of Bothnia, while at Christmas 50 tons give the same quantity. The weight of the water, taken from the centre of the Baltic, is to that of fresh water as 1·038 or 1·041 to 1·000; that of the Atlantic is 1·288. This small degree of saltness is doubtless to be attributed to the immense quantity of fresh water which in spring-time and the early part of the summer, when the snow is melting, is brought down by the numerous swollen and rapid rivers. The streams which fall into the Gulf of Bothnia are more numerous and rapid than the rest: accordingly this portion of the Baltic contains less salt than other parts.

The comparatively small depth of the Baltic may perhaps in some degree be attributed to the numerous rivers which flow into it. In this respect the Baltic may be considered as the vast æstuary of a great number of streams; and the greatest part of its surface is filled up by the bars formed by rivers, which in spring-time are exceedingly turbid, and carry down vast quantities of earthy matter. This supposition is confirmed by its depth being greatest where no great rivers enter, as near the island of Bornholm, and between it and the coast of Sweden, where it is 110 and even 115 fathoms deep, while in general it only attains from forty to sixty fathoms. The common depth of the North Sea is from 120 to 150 fathoms.

To these two circumstances—the small degree of saltness and the little depth of its waters—it is to be attributed that the shores of the Baltic nearly every year are covered with ice, which in general, from the end of December to the beginning of April, shuts up the harbours, straits, and bays, and interrupts navigation. In the Gulfs of Finland and of Bothnia the freezing begins sooner and ends later. In the first months of the year great pieces of ice are sometimes met with between Stockholm and the islands of Dagoe and Oesel. It even happens, though rarely, that extensive portions of the Baltic are frozen over. According to tradition, a communication over the ice was established in 1333 between the town of Lubeck and the Danish islands and the coast of Prussia, and public-houses were erected along the road. In 1658 Charles X. of Sweden marched an army over both Belts to the conquest of Zealand; and in our days, in 1809, a Russian corps passed from Finland to Sweden over the ice, at the narrowest part of the Gulf of Bothnia, called the Quarken.

The waves of the Baltic do not rise to such a height as in the North Sea, or in any other part of the Atlantic, but they break much more abruptly. The first circumstance is probably caused by the narrowness of the sea, and the second by its inconsiderable depth.

The current of the Baltic may be compared to that of a wide river or a large æstuary. It commences at the remotest extremities, and its course is towards the outlets of the sea. The greatest volume of fresh water is discharged by numerous rivers into the northern part of the Gulf of Bothnia, whose united waters form a current which is very rapid in the strait of the Quarken. It becomes less rapid where the gulf enlarges, and divides afterwards at the Aland Islands into different branches, which however again unite, and the stream is felt over the whole surface in the central parts of the sea, until it makes its exit through the three straits, being most sensible in the Little Belt. What is commonly observed in wide æstuaries happens here also. When a strong wind has blown directly into the entrance for some time, it changes the current, and causes an influx of water from the open sea. Such a temporary current is said to exist sometimes even at the entrance of the Gulf of Finland, after a long prevalence of north-west winds.

The tides, which rise to a greater height in the North Sea than in most other parts of the ocean, especially along the shores of Germany and Jutland, decrease rapidly in the Kattegat, so that in some places they produce only weak and irregular oscillations of the water. Their feeble efforts may still be traced in the three straits, but farther southward they disappear entirely. At Copenhagen the average tide is about one foot.

The Swedish naturalists have observed a rise of the waters in the Baltic, which seems to proceed from another cause. The surface sometimes rises to three feet and upwards above the ordinary level, and maintains itself at that height sometimes only for a few days, but occasionally for several weeks altogether. This change occurs in all seasons, but is most frequent in autumn. This phenomenon has not yet been explained in a satisfactory manner.

The Baltic does not abound in fish either as to species or numbers. The herring once visited it in shoals, and this fishery was considerable in the 14th and 15th centuries along the coasts of Scania or southern Sweden; but since that time only individuals have been caught. It would even seem that it has abandoned the Kattegat. But on the eastern coast of Sweden, especially on the Gulf of Bothnia, a fish is caught in great numbers, which is only distinguished from the herring by its being smaller. It is called straemling, and is the only fish of the Baltic which is not consumed in its fresh state, but dried, salted, and otherwise prepared for a distant market. The greatest quantity is taken between the Quarken and the Aland Islands, and many families on this coast gain their subsistence by this fishery. The next most important fishery is that in the straits between the Danish Islands. Many species, which are not found farther to the east, especially those of the cod kind, enter these straits from the Kattegat, and afford an abundant supply of food to the inhabitants of some of the smaller islands. On the east coast of the Baltic only a few families subsist by fishing alone, if we except the island of Gothland and the Aland Islands, on which a considerable number of seals are killed at the breaking up of the ice which in winter attaches itself to these islands. The most abundant species of fish, next to those already named, are salmon, sturgeon, turbot, and flounder, and the sword-fish. Whales are sometimes, but rarely, cast upon the shore in a dead state. The Delphinus Phocaena is frequently caught along the shores of Scania.

Among the productions of the Baltic we must notice amber. Though met with sometimes in a few other countries, as in Sicily, it is only on the southern coast of this sea, and especially in Prussia, between Königsberg and Memel, that it is procured in considerable quantities. Part is dug up in a few places at a distance of two hundred feet from the beach; and part is thrown upon it by the waves after a prevalence of north-westerly and westerly winds. [See AMBER.]

The countries surrounding the Baltic supply timber, grain of different kinds, hides, tallow, &c., in the greatest abundance and of the first quality. If we except the seas contiguous to the British islands, and that which encloses the maritime tracts of the Chinese empire, no portion of the ocean is so much frequented by ships as the Baltic. To support this assertion we shall only state, that in 1829, 13,186 vessels passed through the Sound, and several hundred more through the canal of Kiel; and all this in spite of the difficulties and disadvantages to which the navigation of this sea is subject. These difficulties arise partly from the narrowness of the sea, and partly from its numerous sand banks along the southern and eastern shores, where shipwrecks are more frequent than in any other part. It is thought that two per cent. of the vessels which visit the Baltic are annually lost, while the commerce between Great Britain and America is carried on with the loss of one per cent. Besides this, the harbours of the Baltic are shut up for three or four months by the ice, and thus the navigation is interrupted for nearly one-third of the year. Another disadvantage is the shallowness of the harbours on the southern coast, and the complete want of tides. No vessel drawing twenty feet of water can enter any harbour as far as the Gulf of Finland, and most of them admit only such as draw fifteen or sixteen feet. Consequently the vessels which visit these ports average only between 200 and 300 tons. This circumstance places these countries under great disadvantages in carrying on a commerce with remote parts. In long voyages the profit arising from the employment of large vessels is much greater than when small ships are used; and countries which are limited to the employment of the latter cannot enter into competition with those which use large vessels. The navigation of the countries about the Baltic consequently extends only to their own sea and the neighbouring ports of the Atlantic. This shows the great advantages Britain derives from its geographical situation, which makes it the natural depository of the commodities exported from the Baltic, which from the ports of Britain are afterwards carried in other vessels to the remote countries where they are consumed. The harbours to the north of the Gulf of Finland are much deeper, and admit vessels of 600 tons and upwards; but as these countries are less productive, their trade is in consequence comparatively inconsiderable.

The Swedes who inhabit the coasts long since observed that some places formerly covered by the sea had become dry land in the course of time. This induced some Swedish naturalists to suppose that the surface of the Baltic was lowering. But as that opinion could not be adopted without supposing that the surface of the whole ocean underwent a similar change, others thought that the whole of the Scandinavian peninsula was slowly rising. Celsius even calculated, about eighty years ago, from some traditional data, that this rise amounted to about forty-five inches in a century; but other investigations were not favourable to his opinion. He as well as Linnæus put marks on a few rocks, that this matter might be decided on safer evidence; but a difference of opinion on this subject still prevails. It is certain that, especially along the Gulf of Bothnia, and still more to the north of the Quarken, several tracts are now dry land which were formerly covered by the sea; as for instance near Torneo, some places which were passed over in boats by the French astronomers when they measured a degree, are now changed into meadows. As, however, this portion of the gulf receives very numerous, large and rapid rivers, which bring down great quantities of stones and earthy matter, it seems not improbable that these changes have been produced by the action of the rivers.

The Baltic is called by the Germans, Danes, and Swedes

the Eastern Sea. It is uncertain whence the name of Baltic is derived. It was first used by Adam of Bremen, a monk of the twelfth century, in his description of the Baltic and the countries about it. Several etymologies have been proposed: some derive it from the Danish Baelt, which signifies a girdle; but it seems more probable that it is derived from the language of the antient Prussians, which is now extinct and entirely unknown. In the Lithuanian language, which probably had some affinity with that of the antient Prussians, balta signifies *white;* and it would seem that seas which in winter are partly covered with ice have frequently been called White Seas. (Catteau, *Tableau de la Mer Baltique; Travels* of Von Buch, Thompson, Schubert.)

BALTIMORE, a considerable city in the county of the same name in the state of Maryland, in the United States of America. Baltimore is situated on the north side of the river Patapsco, and between it and Gunpowder River, both of which streams empty themselves into Chesapeake Bay on the west side near its head. The county is separated from Ann Arundel county on the south and south-west by the Patapsco, and from Harford county on the east and north-east by the Gunpowder. On the west and north-west it joins Frederick county, has Pennsylvania on the north, and is bounded by Chesapeake Bay on the south-east.

In 1729 an act was passed by the proprietary government of Maryland for erecting a town on the north side of the Patapsco, and in the following year it was laid out and called Baltimore, from the name of the founder of the colony of Maryland. For many years it did not flourish, and in 1765 it contained only about fifty houses. Captain Hall tells us, on the authority of Mr. Carroll, one of the signers of the declaration of independence, whom the captain saw in his visit to America, in 1828, that Baltimore, which then contained 7000 houses, was a village of only seven houses within Mr. Carroll's memory. The rapid extension of the place is no doubt to be ascribed to its position, which is so favourable for foreign trade, and which has been sufficient to overbalance the disadvantage of unhealthiness, to which it has always been exposed, though in a less degree now than formerly.

The town of Baltimore is built round a basin which forms one of the securest harbours in the United States, and is capable of containing 2000 sail of merchant-ships. The entrance to this harbour, which is little more than a pistol-shot in width, is defended by a fort. At common tides the water rises five or six feet, and the harbour is at all times deep enough, through the greater part of its extent, to receive ships of large burthen, but only small vessels can go quite up to the town. As, from its formation, vessels can only depart from this harbour with the wind in a particular quarter, it is usual for large ships to load and unload in a harbour near the mouth of the basin, which is formed by a neck of land called Fell's Point. For the convenience of being near to the shipping, many stores and houses have been built on this point, and these are now so numerous as to be joined to, and to form a part of, the city of Baltimore.

The exports of Baltimore consist principally of tobacco, wheat, wheat-flour, maize, hemp and flax; and its imports, of colonial produce and the principal European products and manufactures. Much of the export trade that was carried on at this port has of late been transferred to New York, owing to the great improvements in water communication with the interior effected by the latter city. In consequence an attempt has been made to revive the commercial activity of Baltimore by the construction of railroads to facilitate the conveyance of produce to and from the interior. One of these railroads, as originally projected, was to extend from Baltimore to Pittsburg on the Ohio, by a route which would make its length 325 miles. The proposed capital for this undertaking was five millions of dollars, to which the state subscribed liberally. This railroad is partially constructed and in operation, but great obstacles to its completion have been presented. Another railway, to extend from Baltimore to York, Pennsylvania, a distance of 76 miles, was commenced in 1830. A branch of the Baltimore and Ohio railroad, to connect the city with Washington, has also been undertaken. In addition to these, several canals have been projected, one of them to extend from the tide-water of the Potomac river above Georgetown, in the district of Columbia, to Pittsburg. The length of this canal would be 340 miles, and its estimated cost 22,375,000 dollars, one million of which was subscribed by the United States. A charter of incorporation was granted by the state of Virginia in 1824 to the company by whom this canal was undertaken, and it was confirmed by the legislature of Maryland, and by the Congress in 1825. The work was commenced in 1828.

Baltimore is laid out with regularity; the streets, some of which are of considerable width, are for the most part placed at right angles to each other. The town contains several large and handsome churches; those particularly which are appropriated to Roman Catholic and Unitarian worship. The cathedral contains a fine organ. The citizens have erected a monument to General Washington: the statue, which is 15 feet high, is placed on a circular pedestal which stands on a base 50 feet square; the summit is 160 feet from the ground, and as a spot has been chosen for the erection of the monument, which is 100 feet above high-water mark, the statue is a very conspicuous object: it was sculptured in Italy.

The progress of the town may be seen from the following statement of its population at various periods:—

1775, 5,934	1810, 46,555
1790, 13,503	1820, 62,738
1800, 26,614	1830, 80,625

The city contained, in 1830, ten banking companies with an aggregate capital of nearly seven millions of dollars, four marine insurance and two fire insurance companies. The tonnage belonging to the port at the end of 1831 amounted to 43,263 tons, of which two fifths were employed in the coasting trade. The ship builders of Baltimore are celebrated for the construction of very fast-sailing vessels, and were much employed during the war in building privateers. The total value of imports into the state of Maryland, in 1832, almost the whole of which were received at Baltimore, amounted to 4,499,918 dollars. The average quantity of flour exported during each of the five years ending with 1830, was 557,409 barrels. During the last war between England and America (in September, 1814), an attack was made upon this city by the British troops under General Ross. The assailants were repulsed by the citizens with considerable loss on both sides. To commemorate this event, the inhabitants have erected a monument of marble, thirty-five feet in height, which they call the battle monument, and upon which are inscribed the names of their fellow-citizens who fell on the occasion.

The University of Maryland, which was incorporated by the state in 1812, is situated in Baltimore, and is in part supported by an annual grant from the state of 5000 dollars. It was intended that all the usual branches of education should be taught in this University, but, up to a recent date, the only classes in actual operation were those of medicine and law. The Washington Medical College, which was incorporated in 1833, is also opened in Baltimore. Two other institutions, for more general education, St. Mary's College, and Mount Saint Mary's College, are under the direction of Roman Catholics, which sect is very numerous in Maryland. The first-named of these colleges, which was founded in 1791, has a library of 10,000 volumes, and a good philosophical and chemical apparatus. Mount Saint Mary's College, which was established in 1809, has also a considerable library. There were besides, in January, 1831, about 175 male and female schools in the city.

Baltimore sends two members to the House of Delegates, and one member to the senate of the state of Maryland.

The city is about 34 miles N.E. of Washington, and 83 miles W.S.W. of Philadelphia. It is situated in 39° 19′ N. lat. and 76° 44′ W. long. (Thompson's *Alcedo; Hall's Travels in America; American Almanac; Papers presented to Congress.*)

BALTIMORE, LORD, founder of the colony of Maryland in North America. The family name of the Lords Baltimore was Calvert, who were originally of Flemish extraction, but for a long time were settled in Yorkshire, where they were large landholders. George Calvert, the first Lord Baltimore, held several lucrative situations, and obtained extensive grants of land in Ireland and Newfoundland under James I.; but having, in the year 1624, become a Roman Catholic, he was compelled to give up his office of secretary of state, and to abstain altogether from interfering in public affairs, the intolerant spirit of that age prohibiting the open exercise of the Catholic worship. It was an age, however, of great enterprise as well as of religious intolerance. The impulse towards maritime discovery given by the discovery of America, and the passage by sea to the East Indies, had not yet spent its force; and the founding of settlements, or

plantations, as they were then called, in distant colonies was pursued with great ardour, no less by the adventurous spirits who, in a less pacific reign, would have employed their energies in war, than by those who in vain sought for freedom of conscience at home, or who, abhorring the civil and religious tyranny of the Stuarts, became voluntary exiles from the land of their birth. The Catholics were not, it is true, as politically obnoxious to the court of James I. and his successor, as those numerous Protestant sectaries who are known to us by the common appellation of 'Puritans,' but by the great bulk of the nation they were regarded with feelings of fanatical hatred. Though the plantation of Maryland was originally what, in modern phraseology, might be termed a commercial speculation, the religion of its founder and the political events of the time invested it with the character of a purely Catholic settlement.

The French having taken possession of a settlement in Newfoundland, upon which Lord Baltimore had expended a very large sum of money, Charles I. made him a grant of all that tract of country which constitutes the present state of Maryland, but he died before the grant was legalised, and the patent or charter was accordingly made out in the name of his son Cecil, the second Lord Baltimore. This charter is dated June 20th, 1632, and states in the preamble that 'Whereas our right trusty and well beloved Cecil Calvert, Baron of Baltimore, of Longford in Ireland, pursuing his father's intent, and being excited with a laudable Christian zeal for the propagation of the Christian faith and the enlargement of our empire and dominions, hath humbly besought leave of us by his own industry and charge, to transfer an ample colony of the English nation into a certain country, hereafter to be described, in part of America not yet cultivated or planted, though in some parts thereof inhabited by certain barbarous people having no knowledge of Almighty God, &c. &c.' The charter goes on to invest Lord Baltimore and his heirs with full powers over the new colony, 'to be holders of us and our heirs and successors as of our castle of Windsor, and in fee and common soccage, by fealty only, for all services, and not *in capite*, or by knight's service, yielding and paying therefore to us two Indian arrows of those parts every year, on Easter Tuesday, and also the fifth part of all gold and silver mines which shall hereafter be discovered.'

Under this charter, about two hundred persons, of respectable family, and mostly of the Roman Catholic persuasion, entered the Chesapeake Bay, in February, 1634. Having purchased a village from the native Indians, they proceeded to organize the new colony, called Maryland, in honour of Henrietta Maria, the wife of Charles I. The experiment was most successful [see MARYLAND]; a representative form of government was established; all persons professing a belief in the divinity of the Christian dispensation were declared eligible to the civil advantages of the state, without distinction; and as long-continued persecution had taught the Catholics the wholesome lesson of religious tolerance, the constitution of Maryland stood alone in not sanctioning laws directed against liberty of conscience. This most honourable exception, which, however, did not extend to the Jews, soon made Maryland an asylum to the persecuted for conscience sake in the mother country and the adjacent settlements.

The inhabitants of Virginia all along viewed with a jealous eye the rapid progress which the 'papist idolaters' of the neighbouring state were making in population, wealth, and prosperity; and as Maryland originally formed part of Virginia (taking that term in its extensive sense), they were with difficulty restrained from treating Lord Baltimore as a usurper of their rights and privileges. When the civil war had extended itself to the colonies, the triumph of the anti-Catholics was soon felt in the harsh measures which were directed against the Catholics by the legislature of Maryland. But at the restoration the more liberal policy by which the affairs of that settlement had been regulated before the Commonwealth was again adopted, and Lord Baltimore lived long enough to see his most sanguine expectations with regard to its welfare realized. He died in 1676, at an advanced age. Though proprietor of Maryland, Lord Baltimore never resided in it, nor, as it should seem, ever even visited it.

(*Peerage of Ireland*, 'Extinct Peers,' Art. 'Baltimore;' *History of the British Possessions in North America, from the First Discovery by Sebastian Cabot, to the Peace of 1763.* London, 1773. *The British Empire in America; containing a History of the Discovery, Settlement, and Progress of each Colony.* London, 1708. *A Relation of Maryland, &c. &c. &c.*, London, 1635. *The Case of Lord Baltimore, with a Reply*, 1654.)

BALTIMORE BIRD, or **BALTIMORE HANG-NEST.** [See CASSICUS.]

BALTINGLASS, a parish and town in the county of Wicklow, in Ireland: the town is on the south side of the river Slaney. It was once a place of considerable importance, a parliament having been held in it. (See Additions to Camden's *Britannia*, art. 'County of Wicklow,' p. 551.) The assizes for the county were also formerly held in Baltinglass, at which time it returned two members to parliament. (Dr. Beaufort's *Memoir of a Map of Ireland*.) The name is supposed to be derived from Beal tinne glass, which signified the Fire of the Mysteries of Beal: it is also conjectured to have been the grand Beal-tinne of the southern states of Leinster. In the neighbourhood are the remains of several Druidical altars. In 1787 many graves or tombs were discovered at Saunder's Grove, which is in the vicinity of the town: they were composed of large flag stones, set edgeways, without a bottom, and covered on the top with other shapeless stones. Within the tombs were urns, made of baked earth, of a pale colour, and formed in such a way as showed that they were intended to be ornamental. The interior of the tombs was full of burnt bones and ashes. (See *Dublin Chronicle* of October 2, of the same year, quoted in Additions to Camden's *Britannia*.) Not far from the town is Baltinglass Castle, which is a venerable and spacious structure: the age of the building is not recorded. In Baltinglass there is an abbey, which is still in good condition, though built between the years 1148 and 1151: it belonged to the Cistertian order of friars, and was founded by Dermod Mac Murrogh, king of Leinster. He was interred in the abbey. (Archdall's *Monasticon Hibernicum*.) Upon the authority of Ware, the abbot sat as a baron in some of the Irish parliaments. King John confirmed the lands of the abbey, and granted others, among which were the lands of Arklow, containing a salt pit of considerable value. The name of the last abbot was John Galbally, who surrendered on the 15th December, 1537, in consideration of which he received a pension. In the thirty-third year of the reign of Henry VIII. (1541) a grant of the abbey and its possessions was made to Thomas Eustace, Viscount Baltinglass. In the reign of Queen Elizabeth another grant was made to Sir Henry Harrington. (Grose's *Antiquities of Ireland*.)

Baltinglass belongs to the Earl of Aldborough, whose father did a great deal for the enlargement and improvement of the town. Wilson, in his *Post-chaise Companion*, says that he had nearly doubled the houses in the eight years ending 1786. He also established manufactories of linen, woollen, and diaper, which still exist, and give employment to a great number of the inhabitants.

Baltinglass has six annual fairs, on the 2nd of February, 17th of March, 12th of May, 1st of July, 12th of September, and the 8th of December. The magistrates are a sovereign, deputy, recorder, and town-clerk. The town has a church, but no glebe. The living is a rectory, in the diocese of Leighlin.

About seven miles north-east of Baltinglass is Sliebh Guth, or Church Mountain. On the summit of this mountain is a large pile of rough stones, inclosing an area, within which is a well, which has from time immemorial been much frequented by pilgrims. According to the current traditions of the district, these stones were collected in the twelfth century, for the purpose of building a church, and afterwards making a paved pathway over the mountain from old Kilcullen, in the county of Kildare, to Glendaloch. Part of the project was carried into execution, and is still to be seen in a wonderfully perfect state. (Camden's *Britannia*.)

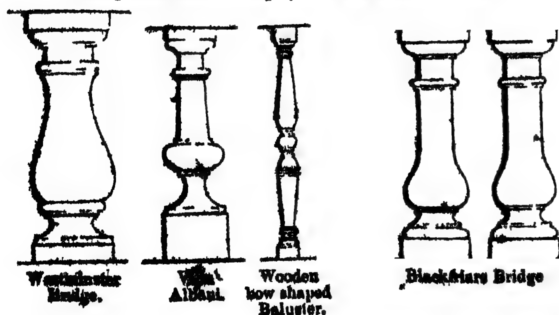
Baltinglass is 38 miles S.W. of Dublin; the distance by the road is 49 miles. The parish contained a population of 2303 in 1821, and the town a population of 1500. By the census of 1831, the population of this parish was 4110, and of the town 1670. (See Camden's *Britannia*; Beaufort's *Memoir of a Map of Ireland*; Carlisle's *Topographical Dictionary*; Wilson's *Post-chaise Companion to Ireland*; Grose's *Antiquities of Ireland*; Archdall's *Monasticon Hibernicum*; *Population Reports*.)

BALUSTER, or **BALLISTER**, is said, we think erroneously, to be derived from 'balustrum,' or 'balustrium,' a

place railed off in the antient baths (Nicholson's *Architectural Dictionary*) It is also conjectured to be derived from 'balaustium' (βαλαυστιον), the flower of the wild pomegranate, which it is said to resemble (*Encyclopédie Méthodique d'Architecture*) Balustrum appears to be only a modification of the word balaustium It is difficult to imagine how the word 'baluster' is derived from the Greek name of the flower of the pomegranate, when we do not even know the form of the antient baluster, or whether it bore any resemblance to that of the moderns We think it more probable that the word was derived from 'balista,' an engine used by the Romans for throwing stones, &c (Vitruvius) Balista was the engine, and balistarium the place where the balista was put, and it is possible the balistarium was railed in The balistarium was according to Lipsius, the engine itself (Plautus, *Pænul*, i 1, 73, Lipsius, *Poliorcet* c iii dial 2, see FACCIOLATI) The balista, or balistarium, was in the form of a bow, and the profile of the baluster or ballister is also in the form of a bow The Norman French word for a crossbow is 'arbalastre,' and the modern French word for baluster is 'balustre' There is so much resemblance in the form of the two objects, and in the words by which they are expressed, that we are of opinion that the word baluster, or ballister is derived from the Roman engine of war balista, or balistarium The baluster is a peculiar kind of column, of the form of an antient bow in its profile it is employed in balustrades [See BALUSTRADE] The baluster has also of late years been formed after the model of Greek and Roman columns Balusters are placed on a plinth and are surmounted with a cornice (See the published works of Palladio, Vignola, Scamozzi and others) The proportions of balusters are given in the work of Sir William Chambers on *Architecture* where they are proportioned to the orders and are made heavier or lighter according to their destination the heaviest balusters are given to the Tuscan and the lightest to the Corinthian and Composite orders

BALUSTRADE the termination of a modern edifice There does not appear to be any example of a balustrade in the remains of antiquity now existing although there are examples of railing or fencing [See POMPEII] Balustrades are most commonly placed over the cornices of large edifices, after the manner of a parapet as at the Banqueting House at Whitehall, St Paul's church London, and Blackfriars and Westminster bridges the two last present very fine examples of the balustrade Balustrades are not only employed in large edifices, above the orders of architecture [see BASEMENT], but also to inclose stairs terraces altars fonts and the balconies of houses [See BALCONY] The balusters forming a balustrade are placed on a plinth at equal distances from one another with a small opening between them they support a cornice, and are divided at intervals by a pedestal (For the proportions of a balustrade over an order of columns, see Chambers's *Architecture*) When a balustrade is placed over an order of columns it is usual to set the die of the pedestal over the columns making the breadth of the die equal to the breadth of the shaft Balustrades are made of iron and wood as well as stone In Italy balustrades are of very frequent occurrence and of prodigious extent At Frascati there is a balustrade in the Villa Conti, more than 2000 feet in length The colonnade of St Peter's, by Bernini, is surmounted with a balustrade But perhaps the most elegant balustrade in Rome is at the Villa Albani, the form of the baluster in this differs from the old and bow shaped baluster commonly employed.

Examples of Balusters employed in four different structures



The cut represents four kinds of baluster; one like the bow above mentioned, the others as if the bow like baluster had been cut in two horizontally to form two balusters The latter is the baluster most commonly used but the former appears to be the oldest and earliest form an example of it may be seen in some of the galleries of old wooden buildings in England and other countries of Europe The court yard at Chillingham Castle and the gate of honour leading into Caius College Cambridge present examples of the bow like baluster There are examples also in the works of Palladio, Vignola, Scamozzi, and other architects of Italy

BALZAC, JEAN LOUIS GUEZ, Seigneur of Balzac, was born at Angoulême in 1594 His father, Guillaume Guez was attached to the service of the Duke d'Epernon, and young Balzac went early to Rome as secretary to Cardinal La Valette His residence of some years in Italy led him to compare the high polish which the language of that country had attained and the rich literature which it had produced with the rude and barren condition of the language and literature of his native land On his return to France he fixed himself at Paris, and then began writing With the assistance of a cultivated taste an extensive reading of the Latin classics and a good ear, he contrived to introduce a harmony, a precision, and a correctness of style which were before unknown in French prose, and which acquired him the name of the most eloquent writer of his time, and the reformer of the French language His contemporary, Malherbe effected a similar improvement in French poetry They were both the forerunners of the great writers of the age of Louis XIV Balzac's merit made him known to the Cardinal de Richelieu, who obtained him a pension of 2000 francs with the honorary rank of Councillor of State His works in his own time had many admirers and also many detractors the most violent among the last was Father Goulu a monk, who attacked Balzac with bitter invective Balzac replied with great temper in several pamphlets, bearing the fictitious name of Ogier but at last disgusted with these polemics he quitted Paris and went to live at his estate on the banks of the Charente near Angoulême He there continued to write and to keep up a correspondence with his friends He died in 1654 and was buried according to his own directions, in the cemetery of the Hospital of Angoulême to which institution he left a legacy of 12 000 francs He also left a gift of 2000 francs to the French Academy for the purpose of establishing a prize for eloquence in prose writing In course of time most of Balzac's works fell into neglect except his Familiar Letters which have been repeatedly printed There are some of his other works which do not deserve to be buried in obscurity His *Aristippe ou de la Cour* which he dedicated to Christina, queen of Sweden, is a series of discourses on the duties of princes ministers and men in office on good and on false politics and on moral principles, with references to antient and modern history interspersed with some curious anecdotes It shows much sound judgment and honest principle and is a book worth reading even now He also wrote *Le Prince*, the title of which he probably took from Machiavelli's celebrated work of the same name with which however it has little in common but the title It is a sort of commentary on the politics and events of his time and a eulogy of Louis XIII, who is represented as the model of a good king it contains much invective against that king's enemies, and chiefly against Spain, the old rival of France It is curious to observe, at this distance of time, and under circumstances so much altered, the mixture of dread and hatred shown by French and Italian writers of the 16th and 17th centuries towards Spain, then the most formidable power in Europe. Balzac compares it to the beast with seven heads and ten horns, which aspires to the dominion of all the world, and he calls the Spaniards brigands of all the lands, and pirates on all the seas. He depicts in vivid colours the ambition and the remorseless cruelty of Philip II; and accuses the Spanish cabinet of still pursuing the same maxims of dark, crooked, and sanguinary policy. There is considerable power and some historical truth in the whole of this invective The work is dedicated to Cardinal Richelieu, who, the author observes in his letter of address, 'will be amused at the vehemence of some of his periods, and will enjoy the sight of a philosopher in a passion The other work of Balzac which deserves mention is *Le Socrate Chrétien*, a series of discourses on the Christian religion and morality in which the author reprobates fanaticism, hypocrisy, per-

secution, as well as a too prying inquisitiveness into the mysteries of faith. But while treating of such serious topics, Balzac does not overlook opportunities of correcting errors and improprieties of language. 'The word *religionnaire*,' he says in one place, 'is not French; it comes from the same country as the word *doctrinaire*, and it was no doubt a Gascon preacher who first uttered it from the pulpits of Paris.'. He censures the use of such appellations as 'heretics,' 'schismatics,' 'enemies of the Church,' applied to the Protestants in his time; 'they are fearful words, calculated to exasperate those whom we ought to endeavour to tame.'

A selection of the most important thoughts contained in the *Aristippe*, the *Prince*, and the *Socrate Chrétien*, was made by M. Mersan, and published under the title of *Pensées de Balzac*, 1 vol. 8vo., Paris, 1808. Balzac wrote also *Le Barbon*, an amusing satire on pedants, which he dedicated to Ménage. He wrote Latin verses, epistles, elegies, &c., which were published in one volume by Ménage after Balzac's death. An edition of Balzac's works in 2 vols. fol. was published by l'Abbé Cassagne. (*Dictionnaire de* Moréri: *Biographie Universelle*; and the works of Balzac above quoted.)

BAMBARRA is an extensive country in the interior of Northern Africa, the exact boundaries of which are not known. On the west it extends to 5° W. long., and on the east probably at least to the meridian of Greenwich. Towards the north it is bounded by the great desert of the Sahara, about 16° N. lat., and to the south it extends perhaps to about 9° N. lat. It derives its name from the Bambarras, a numerous tribe of negroes, who are the native occupants of this part of Africa.

The eastern and greater part of the country is a plain, slightly undulating, and intersected by rivers of considerable size, which in the rainy season overflow their banks, and inundate considerable tracts of land. Along the banks of the principal river of the country (the Joliba) a dead flat of great extent lies on both sides, which likewise is annually inundated. A considerable part of this division has been changed into marshes by the annual inundations of the rivers. The western, or less extensive half, is hilly and even mountainous, comprehending the eastern declivities of that extensive mountain system which extends between the meridians of Ferro and Greenwich, or even farther eastward, and between 5° and 15° N. lat., and is called Kong Mountains. [See KONG MOUNTAINS.]

The climate of course is various. It is sultry and oppressive in the plains, especially on the boundary of the great desert, but where the country rises into hills the air is at all times comparatively cool. About the middle of June the hot and sultry atmosphere is agitated by violent gusts of wind, accompanied by thunder and rain. These usher in the rainy season, which continues till the month of November. During this time the diurnal rains are very heavy, and the prevailing winds are from the south-west. The termination of the rainy season is likewise attended with violent tornadoes, after which the wind shifts to the north-east, and continues to blow from that quarter for the rest of the year. The north-east wind changes the face of the country: the grass soon becomes dry and withered; the rivers subside very rapidly, and many of the trees shed their leaves. About this period the *harmattan* is commonly felt, a dry and parching wind, blowing from the north-east, and accompanied by a thick smoky haze, through which the sun appears of a dull red colour. This wind, in passing over the great desert, becomes hot and dry, and parches up every thing exposed to its current. It is, however, reckoned very wholesome, particularly to Europeans, who generally recover their health during its continuance. It causes chaps in the lips and sore eyes among the natives.

The principal river is the Niger, here called Joliba, or D'joliba, that is, 'the great water,' or 'the great river.' It is not yet exactly known in what part of the Kong Mountains it has its origin. [See NIGER.] Where the river descends from the mountain-region it forms some cataracts, which interrupt the navigation near Bammakoo, not far from the western boundary of Bambarra. From this point it runs through the hilly country and the plain, commonly between extremely low banks, towards the east, north-east, and north-north-east. Numerous villages and some considerable places, as Sego, Sancanding, Silla, and Jennee, stand upon this stream. Below Sego the river divides into two branches, which again unite at Isaca, a village situated at a considerable distance below Jennee. Afterwards it falls into the eastern part of a large lake called D'ebbee or D'ebo, and issuing from it on the northern side passes to Timboctu. In this tract the river is navigated by vessels of from sixty to eighty tons burden, and drawing six or seven feet water. No considerable river joins it in its course through Bambarra from the north; but from the south it receives many tributaries, as the Bagoe and the Koraba, of which the latter is navigated by vessels of sixty or eighty tons burden.

The mineral riches of Bambarra are little known. The mountainous part probably contains gold, but those districts of the Kong Mountains in which great quantities of gold are collected lie farther to the west. Iron seems to abound in many districts, and the inhabitants make utensils of this metal, which are exported to the neighbouring nations. Salt is not found, but is imported in large quantities from the Sahara and the coast of Guinea.

A considerable number of vegetables are cultivated, especially rice, maize, millet, yams, cotton, and water-melons: also, French beans, and onions. In the rainy season cabbages, carrots, and turnips are raised. Tobacco is planted in some districts; and in others the indigo plant grows spontaneously. It is remarkable that very few fruit-trees exist, except the pistachio. Among the trees the most remarkable is the butter-tree, called by Park shea-tree, and by Caillié *cé*. From the kernel of this tree an ash-grey butter is extracted, which is a considerable object of agricultural industry and trade.

In the southern district, the enormous baobab is very common, and its fruit much esteemed. After the shell has been broken, the pulp is taken out, dried well in the sun, and then slightly pounded, to extract the *fecula*, which is used for sauces, and as a substitute for honey. Among other trees are *bambacea*, of great size, and tamarind-trees. Ropes are made of *Hibiscus Cannabinus*; and the *Rhamnus Lotus* bears a fruit of a pleasant taste, rather acid, and in colour resembling gingerbread. Many districts to the north as well as to the south of the Joliba are covered with extensive forests.

The pastures, both in the wooded tracts and in the open plains, being extensive and excellent, the domestic animals are numerous, as horned cattle, sheep, goats, and horses of a fine breed. Poultry abounds in every district, and wild Guinea-fowls are very common. Dogs are reared and fattened for food. In the rivers there are alligators and turtles, besides fish in great abundance, which afford subsistence to a great number of families along the Joliba. Dried fish is a considerable article of commerce. The marshes, which in many parts are of very great extent, are frequented by numbers of aquatic birds, as pelicans, egrets, trumpet-birds, puffins, Barbary ducks, teals, and various other species. A large quantity of honey is collected from bee-hives placed in trees. The termite hills are here as numerous as on the banks of the Senegal; but they are only eighteen inches or two feet in height, whilst on the coast they commonly attain eight or nine feet.

The aborigines of Bambarra are a tribe of negroes, from whom the country has received its name. They do not seem to have advanced much in civilization. They compose the peasantry, but the soil is ill cultivated, and their villages disgustingly dirty. Their food is very bad: they eat all sorts of animals, dogs, cats, rats, mice, serpents, and lizards. Nearly all that they cultivate for the market is a little cotton, which they exchange for salt. They display the vivacity and merriness of the negroes, and get intoxicated by the use of a kind of beer or hydromel.

Among them two other tribes of negroes have formed establishments, the Mandingoes and the Foulahs, who have descended from the Kong-Mountains, compose the population of the towns, and are the mechanics and merchants. Having embraced Islamism, they are much more advanced in civilization; and Caillié observes, that in some places public schools are erected, in which reading and writing are taught.

The Moors, who are dispersed over the western parts of the great desert, have also established themselves in the towns, especially along the Joliba, where they occupy themselves with trade. Having introduced Islamism, they have obtained a great degree of authority with the petty sovereigns of the country, and the Mandingoes and Foulahs.

The language of the Bambarras has a great affinity to that of the Mandingoes, according to Mungo Park, but Caillié states that they have also a peculiar dialect. The

Mandingo and Bambarra languages, according to the former, are spoken all over the countries extending from the Senegal river to the town of Jennée on the Niger. Between Jennée and Timboctu a different language is spoken, which Caillié calls Kissour: but according to Mungo Park, it is called Jennée Kummo by the negroes, and Kilam Soudan by the Moors.

Bambarra carries on a very active commerce, though it is limited to a small number of commodities. The Mandingoes export ivory and perhaps still slaves to the European establishments on the Senegal, Gambia, and the western coast of Africa. But this branch is very inconsiderable when compared with that carried on by the Moors established in the towns along the Niger, through the Sahara, with the countries along the Mediterranean. The principal trading places are, from east to west, Jennée, Sansanding, Sego, Yamina, Bammaku, and Bouré. The last, which lies to the south-west of Bammaku, is the principal market for gold. Small canoes go from Jennée to this place, and return laden with that metal. Besides gold, the principal articles of exchange are slaves, ivory, and coarse cotton cloth made by the natives: they are exchanged for salt brought from the desert, for tobacco, and European merchandise. In their way to the northern countries they pass through Timboctu, which is the general dépôt for them. There seems also to exist some trade with the coast of Guinea, from which salt is imported.

Bambarra is governed by a multitude of petty independent chiefs, who often go to war with one another. The towns inhabited by the Foulahs, Mandingoes, and Moors, seem to be independent of the sovereigns in whose countries they are situated. (Mungo Park; Rennell; Caillié; maps in Mungo Park's and Caillié's *Travels*.)

BAMBERG was formerly a principality, which contained above 200,000 inhabitants, and had a revenue of 75,000*l.*; but at present it forms part of the province of the Upper Main, in the north of Bavaria. It was once an independent bishopric, formed out of the possessions of the Counts of Babenberg, whose line became extinct in 908; this bishopric was instituted at the commencement of the eleventh century, and existed until 1801, when it was secularised. In February, 1803, it was assigned to Bavaria by a decree of the deputation of the Germanic empire, of which a new settlement was then made under the dictation of Bonaparte. Fractions of it have been formed into two bailiwicks or justiceships (landgerichte), which bear the names of Bamberg I. and II., and occupy an area of 164 square miles, with a population of about 31,000 souls, one town, and 43 villages and hamlets. The two bailiwicks are separated by the Regnitz; they are thickly wooded, produce corn, hops, and vegetables in large quantities, as well as wine, and rear considerable numbers of cattle.

BAMBERG, the chief town of the bailiwick of Bamberg II., and the seat of the former prince-bishops, is situated in one of the most fertile and delightful districts in central Germany. It is built on the banks of the Regnitz, which here divides into four branches, about three miles above the influx of that river into the Main, about 130 miles north-west of Munich, and 30 west of Baireuth. The three quarters into which the Regnitz divides the town are united by two bridges; the four districts into which they are divided contain about 2000 houses, 13 churches, 15 places of instruction and public charities, and 9 military edifices. The number of inhabitants, including the military, is about 21,000, of whom not more than 1500 are Protestants, and 560 Jews, the remainder being Roman Catholics. Bamberg, one half of which is built in the form of an amphitheatre, on seven eminences, is generally supposed to have been founded by a colony of Saxons, who settled in these parts in the year 804, and it was embellished by Charlemagne with the church of St. Martin. The five main streets are of handsome breadth and length; the suburb called the 'Steinweg,' and in former days the Teuerstadt, presents the longest line of dwellings, and is the most populous quarter of the town; the deep ditches bordering its ramparts, which have been partially razed, are laid out in walks and gardens; the whole place is well paved and lighted. Amongst the buildings most deserving of notice are a handsome cathedral with four towers, rebuilt by Bishop Otho in 1080: it contains fine monuments in memory of the Emperor Henry the Pious, and his virgin consort, Cunigunda, Pope Clement II., and several Bamberg prelates; besides a 'Resurrection' by Tintoretto, which adorns the high altar, and other pieces by Van Dyck, Sandrart, Merian, &c. The high altar, which is in an elaborate Greek style, is so entirely out of character with this splendid edifice, that it has passed into a proverb as being 'for all the world like a clenched fist thrust into a man's eye.' One of the nails from the holy cross, set in diamonds and precious stones, is exhibited in the sacristy; and in a porch adjoining are monumental statues in bronze of the heads of the chapter ranged along the walls; near this fine structure, too, is the old but humble tenement in which Henry the Pious resided. This edifice, as well as the venerable palace close to it, crown St. Peter's Mount; the palace, once an imperial and episcopal residence, has been degraded into a guard-house, stables, coach-houses, &c. Opposite to these buildings stands the prince-episcopal palace, of three stories, and in the Italian style: it was begun in 1702, but not more than one-half has been completed; there are some frescoes and paintings of much merit in the apartments. The church of St. James is remarkable for its handsome portal, a cupola painted in fresco, and several good altar-pieces; and the Benedictine monastery on St. Michael's Mount, which overlooks the town, has been transformed into an asylum for the reception of aged burgesses and their wives, while the adjacent provostry is now made an hospital for lunatics. Other religious edifices have changed their uses in like manner: the Carmelite convent, for instance, is become an institution for forming nurses; the collegiate church of St. Stephen is now a Protestant place of worship; and the Franciscan monastery is the seat of local government and justice, and its former yard and grounds have been appropriated to a fruit-market.

There is no church in Bamberg, however, comparable for grandeur, simplicity, and internal beauty and embellishments, with that of St. Martin, which was erected by the Jesuits between the years 1690 and 1693. The Jesuits' College attached to it has a library well furnished with printed books, and containing upwards of 1800 manuscripts written on vellum, belonging to periods between the eighth and sixteenth centuries; close adjoining to it are a cabinet of natural history, particularly rich in conchology and entomology, a collection of instruments and apparatus for experimental philosophy, lecture-rooms for divinity and philosophy, &c. The buildings of the Gymnasium are in the same street. The Maxplatz (Maximilian Square), a spacious market-place, forms a prominent embellishment of the town; and the Ernestinian Institution for educating young ecclesiastics stands on one side of it. A Capuchin monastery and the convent of the English Sisters still subsist. No place of worship is in such bad repute for cleanliness as the synagogue, in the immediate neighbourhood of which is the handsome theatre and its ball-room.

The Geierswörth, a winter residence of the late prince-bishops, built on an island formed by the Regnitz, has its basement occupied as a magazine for salt, and its first floor by the offices attached to the Court of Appeal; its gardens, also, are at present laid out in kitchen grounds, and contain a bathing establishment, as well as an open street. On an island united to the upper or western quarter and lower town by a stone bridge, stands the Town-hall.

The Infirmary, erected by Bishop Erthal, with its anatomical, surgical, and clinical schools, laboratory, and botanic garden, is another of those institutions of which the Bambergers have reason to be proud. Till the year 1585, they had a university, which was then changed into a Gymnasium Academicum, but this seminary, in 1804, was replaced by a Lyceum, where a complete course of divinity and philosophy is given, and the former medical faculty has been retained. The studies pursued in the modern Gymnasium too are of a very comprehensive kind, and directed by 8 professors and 5 teachers; this seminary and the Lyceum a[re] at present attended by about 700 pupils, besides betw[een] 100 and 150 who frequent the preparatory classes. [There] is an establishment also for educating teachers, i[n which] there are generally about 50 pupils; horticultur[e is one] of the branches of instruction taught. Besides [the] schools for the lower classes, Bamberg posse[sses a school] for mechanics, a Jews' school, an academy [...] society for 'promoting genuine piety with[...] founded in 1618, another for aiding th[e ...] sitous, and a third for the encourageme[nt ...] sciences. The number of libraries a[...]

and private, is considerable; among them are the Royal Library, with about 56,000 volumes, and many scarce manuscripts, a chapter library, and three school libraries; the Town Museum of Natural History, rich in specimens, and placed under a handsome roof, and the Cabinet of Natural and Experimental Philosophy, attached to the Lyceum; various private collections in the town, among which we may mention Von Stengel's, which contains above 13,000 wood and copper-plate engravings; and here we may notice that Bamberg claims the honour of having printed the first German work, namely, Bonner's *Fables*, which bears the date of 1461, and of which a copy is extant in the library at Brunswick. The present number of printing establishments is five. Bamberg was the birth-place of Clavius, the mathematician, who was the author of the Gregorian Calendar, and of Joach. Camerarius, the philologist, who died in 1574. Among the numerous incorporations in this town is that of the gardeners, which consists of 508 masters, 70 apprentices, and upwards of 250 workmen. The highest prize which it gives—and it is given but once in three years—is for the cultivation of officinal plants, particularly the liquorice root, of which above 50,000lbs. are annually sent abroad. Very considerable quantities of vegetable seeds are also raised and exported by the Bamberg growers. There are sixty brewers here, whose beer is in much demand in some of the German states. The other manufactures consist of tobacco, porcelain, musical instruments, marble wares, starch, sealing-wax, gold and silver plate, gloves, &c. Two annual fairs give life to the trade of the town, the situation of which enables it to participate largely in the traffic carried on between the north and south of central Germany. The navigation of the Regnitz for the larger-sized class of vessels, which commences at Forkheim, about fourteen miles higher up, is however much impeded by mills and water wheels. The environs of Bamberg abound in picturesque sites and varied attractions for the visiter. 49° 53′ N. lat., 10° 59′ E. long.

BAMBO'CCIO, more frequently known by his proper name, Peter de Laer, was born at Laeren, in Holland, in 1613. His disposition for art manifested itself in early childhood, and was encouraged by his parents, who procured for him the requisite instruction in the elements of design, and afterwards sent him to Rome. De Laer's genius was not of that kind which contents itself with the imitation of established models; he gave little attention to works of antient art, nor did he enrol himself among the disciples of Michael Angelo, Raffaelle, or the Carracci. He neglected classical art, which was ill-suited to his temperament, but found a surer reputation in the freshness, novelty, and animation which the scenes of every-day life presented to his pencil, and which he has exhibited with wonderful truth and vivacity. It is not to be inferred, however, that De Laer drew no advantages from his residence at Rome, or that he was wholly insensible to the influences which surrounded him. He was intimately acquainted with N. Poussin and Claude, and frequently made excursions to the environs of Rome in company with those great artists; and there he found those beautiful studies of ruins, tombs, temples, and aqueducts, with which he has so finely embellished his back-grounds. It is true that De Laer's imaginative capacity was seldom capable of furnishing principals to those noble accompaniments, of selecting a story, or introducing actors corresponding with the grandeur of the scenery; his poetic invention rarely went beyond a nymph or piping shepherd. It was amidst the realities of active life that his genius found its proper subjects. He delighted in fairs, hunting parties, the exploits of banditti, rustic festivals, harvest-homes, and drolleries of all sorts, subjects which the Italians comprise under the general name of *Bambocciate*, and from which the name given him in Italy was derived, not, as some have asserted, from the deformity of his person. De Laer was profoundly skilled in the art of graduating his objects, whether through the medium of lines or colours. His effects of aërial perspective are surprisingly just, and his skies are touched with a depth, delicacy, and transparency which has rarely been excelled. It is justly observed by Sandrart that, in which [illegible] of painters whose pictures are on a small scale the [illegible] are usually slurred and indistinct, but that through the works of De Laer they are marked with all extremely low energy, and distinctness which might be north-north-east largest performances. His memory was places; as Sego, [illegible], and anything which he had once thistream. Below [illegible] ect for his pencil he could paint, at which again unite at any distance of time, with as much facility as if it was still before him.

De Laer's moral qualities entitle him to no less respect than his genius. His person was extremely deformed, but this misfortune did not affect in the slightest degree the natural kindliness of his feelings, or the cheerfulness of his temper. His amiable character was well appreciated, and co-operated with his talents in procuring him the patronage and friendship of the most eminent persons in Rome. He protracted his residence in that city to sixteen years, and at length, at the earnest entreaty of his friends in Holland, left it with regret for his native country. He occasionally visited Amsterdam, but his principal residence was at Haarlem. Houbraken asserts that the rising reputation of Wouvermans, who began to distinguish himself about this time, affected De Laer with such jealousy as to injure his health and impair his talents, an imputation not very consistent either with the natural generosity of his temper, or with the high estimation in which his works were unquestionably held to the close of his life. It is certain, however, that many circumstances tended to embitter his latter years. He had always been improvident, and he became afflicted with an asthma so insupportably severe as to cause habitual fits of despondency, in one of which, it is stated, he threw himself into a canal, and was drowned. This is said to have happened in 1675; but as other authorities state his death to have happened in 1673, and make no mention of this circumstance, it is possible that the story of his drowning himself is unfounded.

De Laer made several admirable etchings from his own designs, which usually bear his signature. The following may be enumerated:—

A set of eight plates of animals and rural subjects, inscribed *P. de Laer, Roma*, 1636; a set of six horses, same inscription; a blacksmith shoeing a mule, *P. v. Laer, f.*; a blacksmith's shop, *P. D. Laer, f., Roma.*

BAMBOROUGH, or BAMBURGH, an antient town on the coast of Northumberland. Bede says it was called *Bebba* from a queen of that name, and Alfred, translating him, calls it 'the kingly burgh which men nameth Bebbanburgh.' The Saxon Chronicle, under the year 547, says that Ida then began to reign, and was twelve years king of Northumberland, and built Bebbanburgh, which he first inclosed with a hedge, and after with a wall. Though now only a small village, it was once a royal burgh of considerable importance, with the privilege of returning two members to Parliament. It is five miles east from Belford and 329 from London. The castle, which is one of the oldest in the kingdom, stands on a perpendicular rock close to the sea, above the level of which it is 150 feet. The castle is only accessible on the south-east side. Some antiquaries are of opinion that the remains of Ida's castle are part of the present structure. Within the keep is an antient draw-well, 145 feet deep, and cut through the solid basaltic rock upon which it stands into the sandstone below: it was first known to modern times in 1770, when the sand and rubbish were cleared out of its vaulted cellar or dungeon. In the reign of Queen Elizabeth, after the memorable Battle of Musselburgh, Sir John Forster, warden of the marshes, was made governor of Bamburgh Castle. Sir John's grandson obtained a grant of it, and also of the manor, from James I. His descendant, Thomas, fortified both in 1715; but his relative (not uncle) Nathaniel Lord Crewe, Bishop of Durham, purchased, and by his will, dated 24th June, 1720, bequeathed them to charitable purposes. In 1757 the trustees for Bishop Crewe's charity commenced the work of repair which was wanted, on the keep or great tower of the castle. The superintendence of these repairs being committed to Dr. Sharpe, one of the trustees, and afterwards Archdeacon of Northumberland, he converted the upper parts of the building into granaries, whence, in times of scarcity, corn might be sold to the poor at a cheap rate. He also reserved to himself certain apartments for occasional residence, that he might see his charitable objects carried into effect; and the trustees still continue to reside here in turn. Dr. Sharpe expended considerable sums of his own in these repairs, and in 1778 gave property, which was of the annual value of 109*l.* 17*s.* in 1830, to trustees, for the repair of the great tower. Much has been done since his time, and it is matter of just exultation to see this venerable fortress gradually reclaimed from ruin, and converted into apartments for the most wise and benevolent purposes. A large room is fitted up for educating boys on

the Madras system. A suite of rooms are also allotted to two mistresses and twenty poor girls, who from their ninth year are lodged, clothed, and educated here till fit for service. Various signals are made use of to warn vessels in thick and stormy weather from that most dangerous cluster of rocks called the Fern Islands. A life boat, and all kinds of implements useful in saving crews and vessels in distress, are always in readiness, and all means to prevent wrecks from being plundered and for restoring them to their owners. This charity has also been judiciously extended to the relief of seamen who may suffer either by shipwreck or otherwise in navigating this dangerous coast. A constant watch is kept at the top of the tower, whence signals are made to the fishermen of Holy Island as soon as any vessel is discovered to be in distress, when the fishermen immediately put off to its assistance. The signals are so regulated as to point out the particular direction in which the vessel lies. Owing to the size and fury of the breakers it is generally impossible for boats to put off from the mainland in a severe storm, but such difficulty occurs but rarely in putting off from Holy Island. In addition to these arrangements for mariners in distress, two men on horseback constantly patrole the coast a distance of eight miles, from sunset to sunrise every stormy night. Whenever any case of shipwreck occurs it is their duty to forward intelligence to the castle without delay. As a further inducement to this premiums are often given for the earliest notice of such distress. By these means many lives are saved, and an asylum is offered to shipwrecked persons in the castle for a week or longer if necessary. The bodies of those who are lost are decently interred at the expense of this charity. There are likewise the necessary instruments and tackle for raising vessels which have sunk, and whatever goods may be saved are deposited in the castle. The castle contains an extensive library, an infirmary, and dispensary. In the infirmary only about 1000 persons are received in the course of a year. In addition to what has been mentioned, the funds of the charity are also applied to the augmentation of small benefices, contributions towards the building and enlarging of churches and the foundation and support of schools, exhibitions to young men going to either of the universities, the binding out apprentices, annuities and casual donations to distressed individuals, and subscriptions to different charitable institutions. In 1830 the total income of Lord Crewe's estates was 8126*l* 8*s* 8*d*. In 1801 the population of Bamburgh was 29[illegible], in 1811, 2[illegible]8, in 1821, 312, and in 1831, 117. (Communication from a Correspondent.)

BAMBOUK is a country in Africa, extending between 12° and 14° N lat, and 8° and 11° W long. It occupies a part of the declivities with which the extensive system of the Kong Mountains descends towards the northern plain and the great desert of the Sahara. It is very mountainous, its whole surface being covered by extensive ranges and intervening valleys; only towards the western boundary along the river Ba-Fing, the valleys pass into plains of moderate extent. Yet it is not a sterile country. The mountains afford excellent pasture to numerous herds of horned cattle, and the lower parts of the valleys produce maize and rice in abundance. The mines yield silver and iron of excellent quality, and also a great quantity of gold. The French have compared it in this respect, and not without some reason, to Peru. It would indeed seem that that portion of the Kong Mountains which lies to the west of the meridian of Greenwich, is one of the most auriferous regions of the globe, and by far the greatest part of the gold which is exported to Europe and Asia from Africa is collected in Bambouk and the countries adjacent to the east and south. The principal gold mines of Bambouk are situated to the south of the city of Bambouk, in the mountains of Tambaoura; but a greater quantity seems to be obtained by washing the sand which the rivers have carried down from the mountains and imbedded along their courses in the alluvial soil. For this purpose holes are made in the alluvial soil during the dry season from twenty to twenty five feet deep, in which the small particles of gold are generally found mixed up in a stratum of fine reddish sand, with small black specks therein. The deeper this stratum lies, the richer it is in gold. The sand is brought out in baskets, and then washed by the women in calabashes. Higher up the rivers in some places the sand and clay have been carried off, and nothing left but small pebbles, among which pieces of native gold are found; these are called *sanoo birro*, 'gold stones,' while the small particles obtained by washing are called *sanoo koo*, 'gold washing.'

Part of the gold is converted into ornaments for the women. When a lady of consequence is in full dress, her gold ornaments may be worth altogether from 50*l* to 80*l* sterling. A small quantity is employed by the merchants in defraying their expenses to and from the European establishments on the Senegal and Gambia, but by far the greater part is annually carried away by the Moors, who take it to Timbuctu, whence it finds its way to the northern coast of Africa, to Egypt, and to Asia. It is exchanged for other commodities, but chiefly for salt, the value of which article is very great in these mountainous countries of Africa. One slab, about two feet and a half in length, fourteen inches in breadth, and two inches in thickness will sometimes sell for 2*l* 10*s* sterling, and from 1*l* 15*s* to 2*l* may be considered as the common price. This salt is brought from the Desert of Sahara. The European merchandise, brought from the coast has till lately been generally paid with slaves.

Among the wild animals of the woods with which a great part of the country is covered, lions, leopards and elephants are mentioned; ivory is brought hence to the western coast.

The Ba-Fing, which traverses the eastern districts of Bambouk and divides it from Brooko, is one of the greatest tributaries of the Senegal, and by Mungo Park, perhaps with reason, considered as the principal branch of the river. It rises, according to that traveller, near 11° N lat, runs in a general direction from south to north, and after uniting its flood with that of numerous tributaries it waters Bambouk, and then joins another large river coming from the west called Kokoro. After this junction that river receives the name of Senegal, and runs to the west north west.

The whole mountainous tract which forms the northern declivity of the Kong Mountains is inhabited by the Mandingoes, a race of negroes praised by Mungo Park for their industry, sagacity, and integrity, and compared by Rennell with the Hindoos. The Frenchman Caillie, does not give so favourable a picture of them. [See MANDINGOES.] (Mungo Park; Ritter's *Africa*.)

BAMBUSA, or BAMBOS, a genus of grasses, well known for its great economical importance, but consisting of species which are very imperfectly understood by botanists. It is remarkable in structure, among other things, for having only one style, which is more or less deeply two or three parted, three minute scales at the base of its ovary, and six stamens.

It is doubtful whether nature has conferred upon the inhabitants of hot countries any boon more valuable than the bamboo, unless it is the cocoa nut. To such a multitude of useful purposes are its light, strong and graceful stems applicable. These are universally pushed forth by a strong, jointed, subterranean, creeping rootstock, which is the true trunk of the bamboo, the shoots being the branches. The latter are hard externally and coated with flint; in the inside they are hollow, except at the nodes, where strong partitions stretch across the inside and cut off the interior into a number of closed-up cylinders. In the cavity of these cylinders water is sometimes secreted, or, less commonly, an opaque white substance, becoming opaline when wetted, consisting of a flinty secretion, of which the plant divests itself, called tabasheer, concerning the optical properties of which Sir David Brewster has made some curious discoveries.

In their manner of growth they exhibit a beautiful example of a contrivance by which they are enabled to grow into the dense tufts which they usually form. When full grown, a bamboo is a straight rod, bearing a number of stiff branches, which shoot at nearly right angles from the main stem; and it is difficult to conceive by what arrangement such a stem elevates itself through the dense mass of rigid branches which cross each other in every direction. This is, however, contrived by nature in a very simple manner. The young shoot of a bamboo, whatever its length may be, when it is first produced, is a perfectly simple sucker, like a shoot of asparagus, but having a sharp point, and in this state it pierces readily the dense overhanging branches; it is only when it has arrived at its full length and has penetrated through all obstacles, that it begins to form its lateral shoots, and these, which are emitted horizontally, readily interpose themselves between the horizontal laterals of the

bamboo stems among which they grow. In the words of Dr. Roxburgh, the shoots, on their first appearance, resemble a large straight elephant's tusk invested in stout leathery sheaths.

The purposes to which different species of bamboo are applied are so numerous that it would be difficult to point out an object in which strength and elasticity are requisite, and for which lightness is no objection, to which the stems are not adapted in the countries where they grow. The young shoots of some species are cut when tender, and eaten like asparagus. The full-grown stems, while green, form elegant cases, exhaling a perpetual moisture, and capable of transporting fresh flowers for hundreds of miles: when ripe and hard, they are converted into bows, arrows, and quivers, lance-shafts, the masts of vessels, bed-posts, walking-sticks, the poles of palanquins, the floors and supporters of rustic bridges, and a variety of similar purposes. In a growing state the spiny kinds are formed into stockades, which are impenetrable to any but regular infantry, aided by artillery. By notching their sides, the Malays make wonderfully light scaling-ladders, which can be conveyed with facility where heavier machines could not be transported. Bruised and crushed in water, the leaves and stems form Chinese paper, the finer qualities of which are only improved by a mixture of raw cotton and by more careful pounding. The leaves of a small species are the material used by the Chinese for the lining of their tea-chests. Cut into lengths and the partitions knocked out, they form durable water-pipes, or, by a little contrivance, are made into excellent cases for holding rolls of papers. Slit into strips they afford a most durable material for weaving into mats, baskets, window-blinds, and even the sails of boats. Finally, the larger and thicker truncheons are exquisitely carved by the Chinese into beautiful ornaments. It is, however, more especially for building purposes that the bamboo is important. According to Marsden, in Sumatra the frame-work of the houses of the natives is chiefly composed of this material. In the floorings, whole stems, four or five inches in diameter, are laid close to each other, and across those laths of split bamboo about an inch wide are fastened down with filaments of the rattan-cane. The sides of the houses are closed in with the bamboo opened, and rendered flat by splitting or notching the circular joints on the outside, chipping away the corresponding divisions within, and laying it in the sun to dry, pressed down with weights. Whole bamboos often form the upright timbers, and the house is generally roofed in with a thatch of narrow split bamboos, six feet long, placed in regular layers, each reaching within two feet of the extremity of that beneath it, by which a treble covering is formed. Another and most ingenious roof is also formed by cutting large straight bamboos of sufficient length to reach from the ridge to the eaves, then splitting them exactly in two, knocking out the partitions, and arranging them in close order with the hollow or inner sides uppermost; after which a second layer, with the outer or convex sides up, is placed upon the other in such a manner that each of the convex falls into the two contiguous concave pieces, covering their edges: the latter serving as gutters to carry off the rain that falls upon the upper or convex layer.

Such being the utility of the different species of this plant, we shall give a brief and popular account of all with which botanists are acquainted, in the hope that it may be the means of causing new varieties to be introduced into countries where they are still unknown; an object which seems to be of the more importance, because they generally grow in dry and stony places, where little or nothing of equal utility can be made to thrive. That some of them would grow in the west of Ireland, or the south of Europe, seems to be almost certain.

In Rees's *Cyclopædia*, Sir James Smith noticed only four species, under the name of Nastus; Dr. Roxburgh speaks of but six species as known in continental India; Römer and Schultes enumerate twenty, to which we have added indications of several more.

They may be conveniently distributed in three sections.

§ 1. *Asiatic Bamboos, with the flowers either in spikes or panicles.*

1. *B. arundinacea*, Roxb. Spiny. Leaves very narrow, covered with asperities on the margin and upper surface. (*Bans*, in Bengal; *Mulla Vedroo*, of the Telingas; *Mungil*, or *Munkil*, of the Tamuls; *Bula Java*, in Amboyna.)—Common in rich, moist soil, among the mountains of India. The stems grow in clusters from 10 to 100, from the same root-stock, and are straight for 18 or 20 feet. When in flower it is usually destitute of leaves, and as the extremity of every ramification is covered with blossom, the whole tree seems one entire immense panicle. Its seeds are used as rice. Tabasheer is found in its joints.

2. *B. stricta*, Roxb. Somewhat spiny. Flowers in extremely compact whorls. (*Sadanapa vedroo* of the Telingas). Said to be a smaller species than the last: it grows in a drier situation, has a much smaller cavity, and is very straight. Its great stength, solidity, and straightness, render it much fitter for many uses. From this the shafts of lances are made in India.

3. *B. vulgaris*, Wendl. Not spiny; leaves very narrow, covered at the edge and on the upper surface with asperities.—Found in the East Indies, whence it is thought to have been carried to the West. Its stems are from twenty to thirty feet long, and as thick as a child's arm.

4. *B. spinosa*, Roxb. Strongly armed with both single and compound spines; leaves very narrow, rarely more than six inches long. (*Behor bans* in Bengal.)—Common about Calcutta, and in the south of India, forming an impenetrable jungle; also often cultivated round Indian villages. It has a smaller hollow than most of the others, and is consequently stronger than many of them. Dr. Roxburgh describes it as rising in such dense tufts as to appear like a single trunk at some distance; and by help of their spiny branches so bound together that it is a most arduous task to cut down an old clump of them. The stems are from thirty to fifty feet long.

5. *B. Tulda*, Roxb. Not spiny; leaves broad, rounded or heart-shaped at the base. (*Tulda bans* in Bengal; *Peha bans* of the Hindus.)—Common all over Bengal; its growth is so rapid that the stems, which are sometimes as much as seventy feet long and twelve inches in circumference, rise to their full height in about thirty days; before their lateral shoots are formed, they are described as resembling fishing-rods of immense size. The young thick shoots, when about two feet high, are tender, and form an excellent pickle. It is chiefly used for scaffolding, and for covering the houses of natives; it is found to last much longer if steeped in water some time before being used. Of this species Dr. Roxburgh mentions several varieties. *Jowa bans* is a larger variety, with longer and thicker joints; *Basini bans* has a larger cavity, and is chiefly used to make baskets. *Behoor bans* is of a small size, very solid and strong, much bent to one side, and armed with numerous strong thorns. A staff of it must be placed in the hand of every young Brahmin when invested with the sacerdotal robe. It is probably a distinct species.

6. *B. Balcooa*, Roxb. Not spiny; leaves narrow, heart-shaped at the base. (*Balcoo bans* in Bengal.)—A native of Bengal, and even more gigantic than the last. It is reckoned by the workers in bamboo the very best for building purposes; previously to being used, it is immersed in water for a considerable time. Two varieties are distinguished: *Dhooli balcoo*, the larger, and *Balcoo bans*, which is smaller and stronger, with a less cavity.

7. *B. Blumeana*, Schultes. Armed with triple recurved spines; leaves very narrow, quite smooth, suddenly tapering into a short stalk. (*Hauer tjutjuk*, or *Bambu durie*, in Java.)—A native of Java. Stems about as thick as a child's arm.

8. *B. agrestis*, Poir. Stems crooked, at the lower part very spiny; leaves narrow, small, smooth. (*Bulu baduri*, and *Teba teba* in Amboyna.)—On mountains, and in dry and desert places in all China and Cochin China; common, also, in various islands in the Malay Archipelago. Its crooked, sometimes creeping stems and rugged aspect, distinguish it. The trunk is a foot thick, and the joints (we presume near the base) a foot and a half long, and often nearly solid.

9. *B. Thouarsii*, Kunth. Stems very much branched.—Found wild in Madagascar, where, however, it is not believed to be indigenous.

10. *B. mitis*, Poir. Stems perfectly unarmed; leaves very narrow, and clasping the stems at their base.—Cultivated in the fields and hedges of Cochin China, and found wild in Amboyna, where several supposed varieties exist. Its stems grow thirty feet long, and are said by Rumphius to be the strongest of all the species, although its sides are thin. It is sometimes as thick as a man's leg.

11. *B maxima*, Poir. Stems very straight, branching only near the summit, and densely covered with spines.—The most gigantic of all the species, from eighty to a hundred feet high, and sometimes as thick as a man's body. Its wood is, however, very thin. It is found wild in Cambodia, Bally, Java, and various islands of the Malayan Archipelago

12 *B aspera*, Schultes. Stems covered all over with a sort of white mealy down (*Bulu potong* of Amboyna)—Found at the foot of mountains in Amboyna, with stems from sixty to seventy feet high, and as thick as a man's thigh It does not branch, but emits little, hard, spine-like roots at its nodes

13 *B. apus*, Schultes Leaves very large, taper pointed, and gradually narrowing to the base, extremely scabrous at the edge Another gigantic species, with the dimensions of the last, growing on Mount Salak, in Java

14 *B Bitung*, Schultes Leaves very large, taper pointed, narrowed at the base into a sort of bristly very short stalk, very scabrous at the edge and on the upper surface Found in Java with the last, and remarkable for its extremely broad and scabrous leaves Its dimensions are not stated

15 *B nigra*, Loddiges Not spiny Stems slender swelled at the nodes, dark brown and polished not more than a man's height Leaves narrow very smooth, rounded and narrowed at the base into a short stalk ligule with long stiff fringes—A native of the neighbourhood of Canton, where its beautiful slender stems are cut for the handles of parasols walking sticks &c It is by far the most patient of cold, having been living for several years without protection in an arboretum in the garden of the London Horticultural Society, and is no doubt capable of being acclimated in the south west of England or on the west coast of Ireland

16 *B arista-ta* Loddiges Stems slender smooth not spiny Leaves very smooth narrowed gradually at the base into a short stalk with downy fringed sheaths Ligules divided into very long coarse fringes Nodes mealy when young Native of the East Indies A very elegant species, related to the last

17 *B nana* Roxb *Kou-ju* of the Chinese of whose country it is a native It makes most beautiful close hedges

18 *B pubescens* Loddiges Not spiny Young shoots, leaf sheaths and leaves on the under side covered with short down A very remarkable species, obtained by the English from the collections of France Its native country is unknown The stems are thirty feet long, and an inch and a half in diameter

19 *B striata*, Loddiges Not spiny Stems slender polished yellow with green stripes Leaves narrow, rather glaucous on the underside, tapering into a short stalk at the base, quite smooth except a few short black hairs on the sheaths A native of China Often cultivated in the hot houses of England on account of its beautiful variegated stems Grows about twenty feet high

20 *B glauca*, Loddiges Not spiny Stems very slender pale green Leaves very small, not downy, taper pointed almost heart shaped at the base, covered on the under surface with very close bright glaucous bloom Leaves scarcely above an inch long, and not more than two lines broad A native of India, whence it was procured by the Messrs Loddiges A very remarkable species not growing above two feet high, with entangled branches

§ 2 *Asiatic Bamboos, with the flowers not panicled, but in simple terminal whorled spikes*

21 *B verticillata*, Willd Leaf-sheaths covered with stinging hairs Stems whitish - Fifteen or sixteen feet high, and when full grown of a pale colour which becomes nearly white in drying The hairs of the leaves occasion so much itching, that this kind is troublesome to collect It is the *Leleba alba* of Rumphius, who says the edges of its leaves are so sharp as to wound the gatherers In Amboyna

22 *B atra* Leaf-stalks covered with stinging hairs. Stems black and shining Very like the last, and found also in Amboyna. It chiefly differs in the colour of the stems. It is the *Leleba nigra* of Rumphius

23. *B prava* Leaves very large stiff, and broad, extremely hispid with stinging hairs —The most common in Amboyna, forming large woods, which come down to the coast, it flourishes equally in dry and moist situations, and is readily known from the others of this section by its very large leaves, which are as much as eighteen inches long and three or four inches broad.

24. *B. picta*. Joints very long, variegated with white and green. Leaves narrow and not very hairy—Common in Ceramа, Kelanga, Celebes, and some other Malayan islands Its joints are as much as four feet long and about two inches thick the wood is thin, and it is consequently used principally for light walking-sticks. it is however extremely strong.

25 *B Amahussana* Joints short Leaves with stinging hairs on the upper part of the stem, but smooth near the ground. Less straight, and more short-jointed than any of the preceding species of this section Its wood is very thick In Amboyna and Manipa.

26 *B multiplex*, Lour Stems long jointed, not spiny Leaves stingless, narrow, and clasping the stems at their base Cultivated in the North of Cochin China for hedges. Its leaves are very narrow and of a brownish green The stems are about twelve feet long and an inch thick

27 *B tabacaria* Poir Stems slender, very straight, of nearly equal thickness, branched with very long rough joints—Wild in the black and argillaceous soil of Amboyna, Manipa and Java in the plains and moister parts of the mountains Its stems are nearly solid, and excessively tough and hard The joints are three or four feet long, and not thicker than the little finger, when polished they make the finest pipe sticks The outside is so hard, that it emits sparks of fire when struck by the hatchet. The species runs very much at the root

§ 3. *American Bamboos*

28 *B Guadua* Humb Leaves very narrow, covered with asperities at the edge and on the under-surface—Found in warm and temperate places, on the western side of the Cordilleras of New Grenada and Quito, growing like a tree thirty or forty feet high, with a knotted, shining trunk, sixteen inches in diameter The leaves, which are six or seven inches long are not more than five lines broad

29 *B latifolia*, Humb Leaves narrow, but oblong, extremely smooth – About twenty five feet high, drooping at the point with shining joints, two feet long, and about four inches thick The leaves are the same length as in the last, but thrice as broad It is found in the damp shady woods on the banks of the river Cassiquiare, in tropical America

30 *B Tagoara*, Nees Leaves oblong lanceolate, rounded at the base and then narrowed into a very short stalk—Stems twenty to thirty feet long, and four to six inches in diameter with joints from six to eighteen inches long, the leaves are nine or ten inches long and full two inches wide Found by Dr Von Martius in woods 1800 feet above the sea on the mountain called Serra do Mar, towards Guarantinqueta in the province of St Paul's

31 *B parviflora*, Schultes An obscure species, found on the mountains of Peru in Huanoco, by Haenke The stem is said to be branched, and the leaves lance shaped, taper pointed with a scabrous edge

There can be no doubt that many other species of this curious genus are to be found in the tropical parts of Asia and America it is also not improbable that some of the foregoing may be repetitions. Travellers who have opportunities of procuring wild specimens of bamboos should dry a small branch with the leaves, and if possible the flowers, and should, at the same time, put by a portion of the lower part of the stem, six or seven feet long, marked so as to correspond with the dried specimen

(See Roxburgh's *Flora Indica*, vol ii, Rumphius's *Herbarium Amboinense*, vol iv., Roemer and Schultes's *Systema Vegetabilium*, vol vii)

BAMEEAN. [See Ghoolghoola]

BAMPTON, or BAMPTON IN THE BUSH, a market town and parish in the county of Oxford and the hundred of Bampton The population in 1801 was 1003, in 1811, 1232, in 1821, 1460, and in 1831, 1605 [See Oxfordshire]

BAMPTON, a market town and parish in the county of Devon and the hundred of Bampton It is 160 miles from London, about half way between Minehead and Exeter. The weekly market is held on Saturday, and there are two fairs in the year, one of which is held on Whit-Tuesday, and the other on the last Thursday in October At these half-yearly fairs some of the finest sheep in England are sold. Its population in 1801 was 1364, in 1811, 1422; in 1821, 1633; and in 1831, 1961 [See Devonshire.]

BAMPTON LECTURE, an endowment for ever of a course of Eight Sermons, to be annually preached in the

University of Oxford, between the commencement of the last month in Lent Term and the end of the third week in Act Term, at St. Mary's Church. This lecture was founded in pursuance of the will of the Rev. John Bampton, canon-residentiary of the cathedral of Salisbury, who ordered that the lecturer should be yearly chosen, upon the first Tuesday in Easter Term, by the heads of colleges only, and no others: no person to be qualified to preach the sermons unless he had taken the degree of M.A. at least, in one of the two universities of Oxford or Cambridge, and the same person never to preach the lecture twice. The sermons to be upon some one or other of the following subjects: 'to confirm and establish the Christian faith, and to confute all heretics and schismatics; upon the divine authority of the Holy Scriptures; upon the authority of the writings of the primitive fathers, as to the faith and practice of the primitive church; upon the divinity of our Lord and Saviour Jesus Christ; upon the divinity of the Holy Ghost; upon the Articles of the Christian Faith, as comprehended in the Apostles' and Nicene Creeds.' Thirty copies of these lecture-sermons are to be always printed within two months after they are preached; one copy to be given to the Chancellor of the University, one to the head of every college, one copy to the mayor of the city of Oxford, and one copy to be put into the Bodleian Library; and the expense of printing them to be paid out of the revenue of the lands or estates given for establishing the lecture; the preacher not to be paid, nor to be entitled to the revenue, before they are printed.

The names and dates of the successive preachers from 1780, when the series was begun, will be found in the *Oxford University Calendar*. The greater part of the sermons preached have been published, but a few of the courses have been printed only, in accordance with the limit already expressed from the founder's will, and are rarely met with. Among the names of the preachers, those of Joseph White, D.D., Edward Tatham, D.D., George Stanley Faber, M.A., William Van Mildert, D.D. (now Bishop of Durham), and Reginald Heber M.A., are perhaps the most eminent.

The clear income of Mr. Bampton's estate, in 1780, amounted to 120*l. per annum.*

BAN, a word found in many of the modern languages of Europe in various senses. But as the idea of 'publication' or 'proclamation' runs through them all, it is probable that it is the antient word *ban* still preserved in the Gaelic and the modern Welsh in the simple sense of 'proclaiming.'

As a part of the common speech of the English nation, the word is now so rarely used that it is put into some glossaries of provincial or archaical words, as if it were obsolete, or confined to some particular districts or particular classes. Yet, both as a substantive and a verb, it is found in some of our best writers; among the poets, Spenser, Marlowe, and Shakspeare; and among prose-writers, Knolles and Hooker. By these writers, however, it is not used in its original sense of 'proclamation,' but in a sense which it has acquired by its use in proclamations of a particular kind; and it is in this secondary sense only that it now occurs in common language, to denote cursing, denouncing woe and mischief against one who has offended. A single quotation from Shakspeare's tale of *Venus and Adonis* will show precisely how it is used by writers who have employed it, and by the people from whose lips it may still sometimes be heard:

> All swollen with chafing down Adonis sits,
> *Banning* the boisterous and unruly beast.

The improvement of English manners having driven out the practice, the word has nearly disappeared. But in the middle ages the practice was countenanced by such high authority, that we cannot wonder at its having prevailed in the more ordinary ranks and affairs of life.

When churches and monasteries were founded, writings were usually drawn up, specifying with what lands the founder and other early benefactors endowed them; and these instruments often conclude with imprecatory sentences in which torments here and hereafter are invoked on any one who should attempt to divert the lands from the purposes for which they were bestowed. It seems that what we now read in these instruments was openly pronounced in the face of the church and the world by the donors, with certain accompanying ceremonies. Matthew Paris, a monk of St. Alban's, who has left one of the best of the early chronicles of English affairs, relates that when King Henry III. had refounded the church of Westminster, he went into the chapel of St. Catherine, where a large assembly of prelates and nobles was collected to receive him. The prelates were dressed in full pontificals, and each held a candle in his hand. The king advanced to the altar, and laying his hand on the Holy Evangelists, pronounced a sentence of excommunication against all who should deprive the church of anything which he had given it, or of any of its rights. When the king had finished, the prelates cast down the candles which they held, and while they lay upon the pavement, smoking and stinking (we use the words of the author who relates the transaction), the Archbishop of Canterbury said aloud: 'Thus, thus may the condemned souls of those who shall violate or unfavourably interpret these rights be extinguished, smoke, and stink:' when all present, but the king especially, shouted out 'Amen, Amen.'

This, in the English phrase, was the *banning* of the midde ages. Nor was it confined to ecclesiastical affairs. King Henry III., in the ninth year of his reign, renewed the grant of Magna Charta. In the course of the struggle which was going on in the former half of the thirteenth century between the king and the barons, other charters of liberties were granted. But for the preservation of that which the barons knew was only extorted, the strongest guarantee was required: and the king was induced to preside at a great assembly of nobles and prelates, when the archbishop pronounced a solemn sentence of excommunication against all persons of whatever degree who should violate the charters. This was done in Westminster Hall on the 3rd day of May, 1253. The transaction was made matter of public record, and is preserved in the great collection of national documents called Rymer's *Fœdera.*

But besides these general *bannings*, particular persons who escaped from justice or who opposed themselves to the sentence of the church, were sometimes *banned* or placed under a *ban*. In the history of English affairs one of the most remarkable instances of this kind is the case of Guido de Montfort. This Guido was the son of Simon de Montfort, earl of Leicester, and grandson of King John. In the troubles in England, in which his father lost his life, no one had been more active in the king's service than Henry of Almaine, another grandson of King John, and the eldest son of Richard, that king's younger son, who had been elected King of the Almains. This young prince being at Viterbo in Italy, and present at a religious service in one of the churches of that city, was suddenly assaulted by Guido de Montfort, and slain upon the spot. A general detestation of the crime was felt throughout Europe. Dante has placed the murderer in the *Inferno:*

> He in God's bosom smote
> The heart still reverenced on the banks of Thames.

The murderer escaped. Among the rumours of the time, one was that he was wandering in Norway. This man the pope placed under a *ban;* that is, he issued a proclamation requiring that no person should protect, counsel, or assist him; that no person should hold any intercourse with him of any kind, except, perhaps, some little might be allowed for the good of his soul; that all who harboured him should fall under an interdict; and that if any person were bound to him by any oath of fidelity, he was absolved of the oath. This was promulgated throughout Europe. A papal bull in which the proclamation is set forth still exists among the public records in the chapter-house at Westminster. A copy of it is in Rymer's *Fœdera.* The pope uses the very expression *forbannimus;* 'Guidonem etiam forbannimus.'

This species of *banning* is what is meant when we read of persons or cities being placed under the *ban of the empire,* a phrase not unfrequently occurring in writers on the affairs of Germany. Persons or cities who opposed themselves to the general voice of the confederation were by some public act, like those which have been described, cut off from society, and deprived of rank, title, privileges, and property.

It is manifest that out of this use of the word has sprung that popular sense in which now only the word is ever heard among us, as well as the Italian *bandire,* French *bannir* and the English *banish.*

In some parts of England, before the Reformation, an inferior species of *banning* was practised by the parish priests. 'In the Marches of Wales,' says Tyndal in his work against

the Romish Church, entitled *The Obedyence of a Christen Man*, 1534, 'it is the manner, if any man have an ox or a cow stolen, he cometh to the curate, and desireth him to curse the stealer; and he commandeth the parish to curse him, every man, God's curse, and his; "God's curse and mine have he," sayeth every man in the parish.' Stowe relates that in 1299, the dean of St Paul's accursed at Paul's Cross all those who had searched in the church of St. Martin in the Fields for a hoard of gold. (London, p. 333.) Tyndal argues against the practice as he does against the excommunicatory power in general. Yet something like it seems to be still retained in the Commination Service of the English Church.

In France the popular language has not been influenced by this application of the word *ban* to the same extent with the English. With them the idea of *publication* prevails over that of *denouncement*, and they call the public cry by which men are called to a sale of merchandise, especially when it is done by beat of drum, a *ban*. In time of war a proclamation through the ranks of an army is the *ban*. In Artois and some parts of Picardy the public bell is called the *ban-cloque*, or the *cloche à ban*, as being rung to summon people to their assemblies. When those who held of the king were summoned to attend him in his wars, they were the *ban*, and tenants of the second or rank the *arrière-ban*; and out of this feudal use of the term arose the expressions *four à ban* and *moulin à ban* for a lord's bakehouse, or a lord's mill, at which the tenants of a manor (as is the case in some parts of England) were bound to bake their bread, or to grind their corn. The *banlieue* of a city is a district around it, usually, but not always, a league on all sides, through which the proclamation of the principal judge of the place has authority. A person submitting to exile is said to *keep his ban*, and he who returns home without a recall *breaks his ban*.

The French use the word as the English do, when they speak of the *ban*, or, as we speak and write it, the *banns* of marriage. This is the public proclamation which the law requires of the intention of the parties named to enter into the marriage covenant. The law of the antient French and of the English church is in this respect the same. The proclamation must be made on three successive Sundays in the church, during the time of the celebration of public worship, when it is presumed that the whole parish is present.

The intent of this provision is two-fold: 1. To prevent clandestine marriages, and marriages between parties not free from the marriage contract, parties within the prohibited degrees of kindred, minors, or excommunicates; and, 2. to save the contracting parties from precipitancy, who by this provision are compelled to suffer some weeks to pass between the consent privately given and received between themselves and the marriage. Both these objects are of importance, and ought to be secured by law. The *ban* or *banns* may, however, be dispensed with. In that case a license is obtained from some person who is authorized by the bishop of the diocese to grant it, by which license the parties are allowed to marry in the church or chapel of the parish or parochial chapelry in which either of them resides, in which marriages are wont to be celebrated without the publication of banns. The law, however, takes care to ensure the objects for which the publication of banns was devised, by requiring oaths to be taken by the party applying for the license, and certificates of consent of parents or guardians in the case of minors. *Special licenses* not only dispense with the publication of banns, but allow the parties to marry at *any* convenient time or place. These are granted only by the Archbishop of Canterbury, in virtue of a statute made in the twenty fifth year of King Henry VIII., entitled an act concerning Peter-Pence and dispensations.

It is not known when this practice began, but it is undoubtedly very antient. Some have supposed that it is alluded to in a passage of Tertullian. Among the innovations introduced in France during the time of the first Revolution, one was to substitute for this oral publication a written announcement of the intention, affixed to the door of the town-hall, or in some public place, during a certain time. But when it is considered how liable these bills are to be torn down or defaced, and the questions which may arise in consequence, it would seem that it is not a mode which there is much reason to prefer to that which has so long been established in Christian nations.

BAN, BANUS, or BANNUS, derived from the Sclavonian *ban*, a chief, is the name given to the governor of certain military districts in the kingdom of Hungary, in Sclavonia, and Croatia, who is the representative of the sovereign, and in virtue of his office, takes the command for the defence of those districts in time of war. A district, over which such a ban or ruler is set, is hence termed a Banate or Banal. There are two of these banates in Hungary; the one, lying between 44° 10′ and 46° 15′ N. lat., and 20° 2′ and 22° 32′ E. long., is called the Hungarian Banate, which comprehends the three south-eastern circles of Torontal, Temesh, and Krashova, which lie between the left bank of the Danube and the right bank of the Theiss. It contains a surface of about 1200 square miles, 165 towns and inhabited places, two districts where the Banate regiments are raised, and a population which has increased since the year 1799 from 129,222 to upwards of 180,000. The military head quarters are established at Temeswar. Between the south-western borders of the Hungarian Banate and the Danube lies the other banate, or the German Banate (Teutsch-Banat), which forms part of the military frontiers of Austria, and has an area of about 1370 square miles: it is therefore termed the Banate Frontier also. A whole regiment is raised and recruited from this district, the population of which has risen from 61,958, in the year 1799, to nearly 91,000 in the present day: the regimental staff is stationed at Pancsova in the Temes. Besides this town, it contains about fifty larger or smaller villages, some of which have 1500 and 2000 inhabitants. [See HUNGARIAN BANATE and GERMAN BANATE.]

Banal Frontier (Banal Generalat or Banal granitze) is part of the Austrian military frontiers which is situated in that sub-division of them called the Croatian Frontier, between 45° and 45° 32′ N. lat., and 15° 50′ and 16° 35′ E. long. It consists of two circles, the First and Second Banal Regiments, which lie on the southern bank of the Save, and extend between that river, the Kulpa and the Unna; the confluence of the last river with the Save forms their most easterly point. They occupy an area of 1003 square miles, which have a population of about 126,300 souls, and contain 513 towns and villages. The staff of the first Banal has its head quarters at Glina, on the river of that name, and that of the second, at Petrinia and Castainicza; the former a large and delightfully-situated town on the Kulpa. The majority of the inhabitants are Croatians, consisting of about 40,000 adherents of the Greek and 86,000 of the Armenian persuasion. The face of the country presents a succession of gentle acclivities and spacious plains: the former are constituted of the Petrova Gora and Zrin ranges. The Kulpa forms its northern, the Save its north-eastern, and the Unna its south-eastern boundaries. The country contains several morasses: the extent of surface turned to account is about 582,000 acres, of which 204,000 consist of woods, and 223,000 of arable land. Nearly 5000 acres are cultivated as vineyards and produce about 57,000 gallons of wine. The pasture lands occupy about 15,500 acres, which support about 8000 horses and considerable numbers of cattle, sheep, and swine. Iron is raised in small quantities; but mechanical industry is represented as being yet in its infancy. Some trade with Turkey is carried on through Costainicza and Radasnitza, in the first Banal Regiment.

The Banal Frontier was formed in the course of the year 1696, during the reign of the Emperor Leopold I.

BANANA. [See MUSA.]

BANBURY, an antient borough and market town, situated on the west side of the river Cherwell, near the northern extremity of the county of Oxford. The limits of the old borough are not co-extensive with those of the parish, which comprises also the township of Neithrop, with its hamlets of Calthorp, Wickham, Hardwick, and Easington, all situated in the hundred of Banbury and county of Oxford, and the hamlets of Grimsbury and Nethercot on the east side of the Cherwell, in Sutton hundred and in the county of Northampton. All these members of the parish have been added to the parliamentary borough by the Reform Boundary Act. Banbury is sixty-four miles N.W. of London, and twenty-two miles N. of Oxford. The Saxon name of the place, according to Camden, was Banesbyrig: it stands in Domesday-book Banesberie. The name has led to the supposition that the great battle between the West Saxon king Cynric and the Britons, A.D. 556, was fought at Banbury; but Barbury, in Wiltshire, also lays claim to being the site of the same event. Roman coins were frequently found at Banbury before the time of Cam-

den; and a Roman altar, discovered long ago, was preserved under an arch in the street, near the present Old George Inn, thence called in old writings the George and Altar Stone Inn. This building was standing within the memory of a few persons now living, and is described as a piece of stone-work eight feet long, supporting an arch about ten feet high, within which arch was placed the Roman relic. These circumstances led Dr. Stukeley and others to place the Roman station, Brinavæ, at Banbury. but that station was on the Portway, which led from Alia Castra (Alcester, near Bicester) to Isannavaria (Burnt Walls, near Daventry); and the line of this road has been recently clearly traced by Mr. Baker about three miles to the eastward of Banbury. Brinavæ is therefore placed with great probability at Black Grounds, near Chipping Warden, six miles distant. Roman remains have, however, been discovered, not only at Banbury, but at several places in the vicinity.

In the year 1125, or soon after, this town was strengthened with a castle, erected by Alexander, the famous Bishop of Lincoln, to whom the manor belonged. In 1139 this prelate, being taken prisoner by King Stephen at Oxford, was compelled to resign Banbury and some other fortresses, but it was shortly afterwards restored to the see, and is frequently mentioned as the occasional residence of the bishops. In the year 1469, a battle was fought at Danesmore, near Banbury, between the forces of Edward IV, under the Earl of Pembroke, and a great body of insurgents from the north of England, whose rebellion had been fomented by the king making Earl of Warwick. After the battle, a quarrel took place at Banbury between the Earl of Pembroke and another nobleman, Lord Stafford, who held a high command in the royal army, in consequence of which the latter lord quitted the town with his numerous archers, and the Earl of Pembroke, weakened in his resources, was defeated the next day with immense loss, and he and his brother, with ten other gentlemen, being taken prisoners, were beheaded at Banbury. In the first year of Edward VI, Bishop Holbech resigned the manor, &c, of Banbury to the crown. Queen Elizabeth granted the castle to the Saye and Sele family, who resided at their neighbouring castellated mansion at Broughton. In the same reign, Banbury Cross, so celebrated in nursery rhymes, was destroyed by the puritans, who then formed a predominant party at Banbury. The zeal of the inhabitants in the cause of the commonwealth has been often mentioned, but although the castle was defended by 800 infantry and a troop of horse, it surrendered a few days after the battle of Edgehill, in 1642. Being garrisoned by the king, it afterwards stood several attacks including two desperate sieges in 1644 and 1646. On the former occasion it resisted every attack for fourteen weeks, when at length it was opportunely relieved by the Earl of Northampton, but not before the garrison had been reduced to the necessity of eating their horses, of which only two remained. On the other occasion the castle was besieged by the famous Colonel Whalley for ten weeks, and only capitulated on honourable conditions after Charles I. had surrendered himself to the Scottish army. For this service Colonel Whalley was rewarded by the parliament. Not many years after this the castle was taken down by the parliament, to prevent its again becoming a strong hold for the royalists in a puritan district. Nothing now remains of it except the name, and small portions of the moat and of one of the walls, upon which last a cottage has been erected. The rest of the site is occupied as garden ground.

Banbury was a borough by prescription; but in the first year of Queen Mary a charter was conferred, as a reward for the services of the inhabitants against John, Duke of Northumberland, who maintained the claims of Lady Jane Grey. James I. confirmed and extended the charter, and a new one was granted by George I., which vested the municipal government in a high steward, recorder, twelve aldermen, six capital burgesses, and thirty assistants, with other officers. All vacancies were to be filled up by the twelve aldermen and six capital burgesses in common council assembled, except in the case of the mayor, in the election of whom the votes of the assistants were also to be taken. There is no evidence of the return of a member of parliament previous to the date of the first charter; but since that time one member has been returned. For a long time, if not during the whole of this period, the member appears to have been returned by the select body of the corporation, namely, the mayor, the twelve aldermen, and the six capital burgesses only. The names of Sir Francis Walsingham, Nathaniel Fiennes, and Lord North, appear in the list of members for Banbury. The influence of the North family, who resided in the immediate neighbourhood of Banbury, long prevailed at elections; but by the extension of the franchise under the Reform Act that influence, which practically amounted to a nomination, was abolished. The number of electors on the register completed in 1834 is 370.

Banbury has long been noted as a thriving place of trade, and was so recorded by Leland in the reign of Henry VIII. This is chiefly owing to its being the centre of that district of rich red land which Arthur Young describes as the glory of the county of Oxford, and as some of the most fertile in the kingdom. The line of the Oxford canal running by Banbury, and communicating through other canals with all parts of the kingdom, has been the means of continuing and improving the trade of the town. The neighbourhood is very thickly covered with villages. There is a considerable manufacture of plush, shag, and girth and other webbing, carried on at Banbury, which employs within the parish 125 men, besides women and children, in some branches of the manufacture, and many others are engaged in the same manufacture in some of the adjacent villages. A manufacture of linen-weaving formerly carried on at Banbury has been abandoned. The weekly market, which is on Thursday, is considered to be the best within many miles round. There are nine chartered fairs and two annual great markets. Banbury cakes have been celebrated from before the time of Fuller, and are still in high repute, but the Banbury cheese, which Shakspeare mentions, is no longer made.

Banbury is situated in a valley almost entirely surrounded with rising ground, most of the streets are very wide and airy. Several of the principal streets run in a line from north to south, and another line, running from west to east, crosses the former one. There were formerly bars or gates at the terminations. This was the description given of the streets by Leland. In 1628 more than one-third of the town was destroyed by fire. Banbury, long proverbial for its dirt, has been made perfectly clean under the operation of an act passed in 1825, for paving, lighting, &c. The footpaths are well paved with Yorkshire flagstones, and the town is amply lighted by the recently erected gas works. The town hall is a mean and insufficient modern building, the town gaol, on the contrary, is an old and rather a handsome one, in which a tread wheel has been recently erected. The old church, dedicated to St Mary, and said to have been erected by Alexander, Bishop of Lincoln, was taken down by Act of Parliament in 1790, and the antient monuments wholly destroyed. But the parish has had to bear a heavy charge for the erection of a new building. In addition to the sums arising from the sale of the church lands and houses, and the materials of the old fabric, together with two large subscriptions, an annual rate amounting to 550*l*. 3*s*, has been made since 1790, and a large proportion of the debt being still unliquidated, the same rate is likely to remain for some time. The present church is spacious, the part used for divine service being 90 feet square within, and capable of accommodating 2300 persons. There are in Banbury meeting-houses belonging to the Presbyterians, Friends, Independents, Wesleyan Methodists, and Calvinists. Formerly an hospital, dedicated to St. John, stood near the southern entrance to the town, the remains of this building were long used as a barn, but have lately been converted into a private residence. Another hospital, dedicated to St. Leonard, stood on the east side of the Cherwell, in the hamlet of Nethercot, and there was in Banbury a religious foundation, called St. Mary's, the particulars concerning which are not well known. In a field adjacent to the southern entrance to the town is an earthen work, or amphitheatre, called the Bear Garden, where the antient English sports were practised.

Banbury Blue Coat School was established in 1705, for boys and girls. In 1817 it was incorporated with the newly-established national schools for boys and girls; but the funds are kept separately, and are partly applied to clothing the children elected on the Blue Coat foundation, namely, sixteen boys and twelve girls. Including these, the national schools at Banbury now educate about 120 boys and 75 girls, besides occasional scholars on Sundays.

The Dissenters have several large and efficient Sunday and evening schools at their respective chapels; and altogether the different schools afford instruction to nearly 800 children. There are besides in the town two excellent charitable societies, a savings' bank, a subscription library, and other useful and benevolent institutions. The excellent old grammar-school kept in a building adjoining the churchyard was suffered to fall into disuse a long time ago. The building remains, and is in the hands of the corporation, who let it for 4*l*. a-year, and apply that amount towards the support of the national schools. Of land or other endowment from which funds were supplied for the support of the school, no traces are now to be found.

The population of the old borough has gone on increasing in the following manner:—in 1801, 2755; in 1811, 2841; in 1821, 3396; and in 1831, 3737. But these numbers do not give the population of the connected *town*, which includes most of the houses contained in the hamlets. The population of the parish was, in 1821, 5673; and in 1831, 6422.

The criminal jurisdiction of the borough extends to capital offences, but no instance of an execution has occurred since 1747. The magistrates hold a petty session every Monday; and general sessions, at which the recorder or his deputy must preside, are held twice in every year. The corporation have also the privilege of holding a court of record, in which all manner of pleas, wherein the debt or damage does not exceed 40*l*., may be determined. Although the old borough, and all the hamlets, jointly support the church, there are three separate districts for the maintenance of the poor: viz., the borough of Banbury; the township and hamlets of Neithrop, &c., in Oxfordshire; and the two Northamptonshire hamlets, which are connected for this purpose with the adjoining parish of Warkworth. The road rates are similarly collected. The poor-rates of the borough are extremely heavy, the expenditure on account of the poor averaging for the five years ending in March, 1833, upwards of 3400*l*. per annum, in a gross population of less than 6500. The church and paving rates are also a serious weight; and these with the high rents neutralize, in a great measure, the advantages derived from the trade of Banbury. The living is a discharged vicarage, in the patronage of the Bishop of Oxford; but the endowment is so poor, that a subscription has been made to increase it. The ecclesiastical jurisdiction of the parish is a peculiar one, belonging to the cathedral of Lincoln.

Although Banbury has witnessed so many important events connected with our English annals, no local or county writer has yet taken the pains to publish its history. (*From a Correspondent at Banbury.*)

BANCA, an island in the Indian Ocean lying off the north coast of Sumatra, near to its eastern extremity, from which it is separated by the Straits of Banca. The island measures in its greatest length from N.W. to S.E. 135 miles, and in its broadest part is 65 miles; the mean breadth is 35 miles. It lies between 1° 30′ and 3° 8′ S. lat., and between 105° 9′ and 106° 51′ E. long.

Banca had always formed a dependency of the sultans of Palembang, in Sumatra, but in 1812 it was formally ceded to the government of the British East India Company. On the 2d of December, 1816, the island was made over to the government of the king of the Netherlands, in exchange for the settlement of Cochin on the Malabar coast.

This island does not contain any continued chain of mountains, but in every part are found short ranges of lofty hills. The highest mountain is situated about two miles from the bottom of Klabat Bay, a considerable inlet on the north side. The height of this mountain, which is called Goonoong Maras, is estimated at 3000 feet above the level of the sea. Manopin Hill, called by the natives Goonoong Manumbling, which is situated at the western extremity of the island, has been found by measurement to be 1500 feet from the level of the sea, and forms an excellent landmark to navigators for the entrance to the straits. Many of the hills on Banca have conical summits; but no trace of any volcanic eruption has yet been discovered on any part of the island. The whole of Banca is abundantly supplied with water of good quality. The principal rivers are those of Jeboos and Jering on the west coast; Marawang river on the east coast; and Antun and Layang rivers, which discharge themselves into Klabat Bay on the north. There are several smaller streams on both the east and west coasts; but none of these, nor indeed of the larger rivers, are navigable for any but very small vessels, in consequence of the sand-banks by which their entrances are obstructed.

Klabat Bay, which would otherwise form an excellent harbour for shipping, and would besides afford means of access to some distance inland from the north coast, cannot be used for these purposes in consequence of the numerous rocks and shallows which occur in every part.

It is no doubt owing to the dread of pirates, from whose ravages the population formerly suffered greatly, that no habitations are to be seen on any part of the coast. The villages are all situated several miles up the rivers. The pirates here mentioned have their haunts in the islands of Lingen and Billiton, and on the west coast of Borneo. The principal settlement, which indeed is the only place that can be called a town on the island, is near the western entrance of the Straits of Banca: it stands on the bank of a small river which takes its rise from Manopin Hill. Previous to the cession of the island to the English, this town was called Mintok; which name was on that occasion changed to Minto, in compliment to the then governor-general of India. This town was originally peopled from Lingen and the adjacent islands: the principal object of the settlers was to carry on a smuggling trade in tea. A few months after the cession of Banca to the East India Company, a census was taken of the population of Minto, which was then found to contain (exclusive of Europeans) 1498 souls; of whom 107 were Chinese, 1220 Malays, and 171 slaves. Shortly before the transfer of the island to the Dutch another census was taken, when the numbers were found to have increased to 1955; of whom 266 were Chinese, 1563 were Malays, and 126 only were slaves. This rapid increase was no doubt principally owing to the greater security offered by the European government, but was also in some part occasioned by a regulation made for the prevention of smuggling, which confined the foreign trade of the island to this the principal port.

Banca derives all its importance, in a commercial point of view, from its tin-mines, which were first discovered in 1710 or 1711, and have since yielded immense quantities of ore: they appear, in fact, to be inexhaustible. The geological formation of the island is a primitive rock, the principal mountains being granite, and those of inferior elevation being formed of red iron-stone: it is in the level ground between these rocks that the tin is generally found in alluvial deposits, seldom lower than twenty-five feet from the surface. Only a small part, comparatively, in the north-west quarter, has yet been surveyed with a view to the opening of mines; but the existence of tin has been ascertained in all the alluvial tracts, from one extremity of the island to the other.

The ore is found in horizontal strata in the form of an oxide, and is generally intermixed with white sand and clay. After being washed in the nearest mountain-stream it is smelted, and yields in various proportions from thirty to seventy pounds of tin for every hundred pounds of ore; the more usual proportion is about sixty of metal to one hundred of ore. If the ore should yield less than twenty-five per cent. of metal, the mine is abandoned as unprofitable. The proportion of metal partly depends upon the quality of the charcoal used in smelting.

From the time of their first discovery, the tin-mines of Banca have been worked by Chinese, whose numbers have been annually recruited. The vacancies occasioned by casualties or deaths, or by the return of any of the miners to their native country enriched by their successful industry, have always been carefully supplied by the administrators of the mines, who were accustomed to send confidential Chinese agents from Palembang to select and engage efficient recruits. When the island was under the sovereignty of the Sultan of Palembang, the administrators of the mines were bound to deliver to him all the tin produced, at the rate of five rix-dollars per pecul of 125 pounds, which quantity was sold by him to the Dutch resident for fifteen rix-dollars. This officer, who was subordinate to the authorities at Batavia, used in this way to receive from 20,000 to 30,000 peculs annually. The Dutch were accustomed to keep vessels continually cruising along the shore to prevent the smuggling of tin; but the temptation to this illicit trade was too strong to be conquered by such means, and private adventurers at all times participated largely in the trade. A small part of the tin, procured in the way described, by the Dutch East India Company, was sent

to Holland, but the great bulk of their purchase was sent to China, where Banca tin is preferred to that of Europe

The collections of tin, made subsequently to the cession of the island to the East India Company, were—

In 1813	.	7,29? peculs.
1814	.	19 119
1815	.	25 190
1816	.	26 670

being an average of somewhat less than three millions of pounds annually The profit derived from the sale of tin in those years more than provided for all the charges of government on the island, and, in fact left a surplus, or net revenue, of more than 30,000*l* sterling per annum Since the transfer of the island to Holland, the supply of tin from its mines has been greatly augmented and after fully supplying the markets of China and India, a large quantity is annually brought to Europe, where it has consequently lessened the demand for the tin of Cornwall

Except during the four months, from May to August inclusive, when the south east monsoon blows, rains are very frequent on the island, especially from November to February inclusive, which is the season of the north west monsoon In the other four months of the year the weather is unsettled and squally Thunder storms are frequent and lightning is observable on half the evenings during the year

The climate of Banca is generally healthy but some spots are of a different character When the English first took possession of the island, an attempt was made to form a settlement at Tanjong Kalaang a beautiful and desirable spot on the western point, and only three miles from Minto but, in consequence of the unhealthiness of the place the intention was necessarily abandoned In the interior parts the action of the sun upon the gravelly soil render the heat oppressive during the day, but the nights are usually cool The thermometer varies from 78° to 84°, and scarcely ever exceeds 88 in the shade

There are various kinds of fine timber in the woods, some of which are employed in building Ebony is abundant on the north coast Large quantities of this wood are sent to Palembang for sale to Chinese traders.

The only quadrupeds found in a state of nature are deer and wild hogs, and these are not numerous Insects are very numerous, and there is an abundance of snakes some of these are small and venomous Fish and pork are pretty abundant on the island other kinds of animal food, and some fruits, are conveyed from the opposite coast of Sumatra Some rice is grown in the interior, but not sufficient for the island consumption, and large quantities are imported every year by the government

The population of Banca is made up of Malays Chinese and indigenous islanders By a census taken when under the British flag the total number of inhabitants, exclusive of the few Europeans connected with the government, was 13,413, of whom

2711 were Malays, of all ages and both sexes
4651 Chinese
6051 native islanders, called Orang Goonoongs

———
13 413

Almost all the laborious occupations are performed by the Chinese. the Malays being extremely indolent, and the Orang Goonoongs living dispersed over large tracts of country in the interior, nearly in a state of nature, and averse to all restraint or habits of settled industry

(See Marsden's *Sumatra* Raffles *Java* Stavorinus's *Voyages*, Court's *Exposition of the Relations of the British Government with the Sultan of Palembang*)

BANCHUS, in entomology, a genus of the order *Hymenoptera* [See Ichneumonidæ]

BANCO [See Bank]

BANCROFT, RICHARD, Archbishop of Canterbury in the reign of James I, was born at Farnworth, in Lancashire, in September, 1544 His father was John Bancroft his mother, Mary, daughter of John Curwyn and niece of Hugh Curwyn, Archbishop of Dublin He was first a student of Christ's College, Cambridge, where, in 1567, he took the degree of B A, and thence removed to Jesus College, where he commenced M A in 1570 In 1575 he was presented to the rectory of Teversham in Cambridgeshire, by Cox, Bishop of Ely and instituted in 1581, at the presentation of the executors of Henry Earl of Southampton, to the rectory of St Andrew's Holborn In 1585 he was made treasurer of St Paul's Cathedral, prebendary of Brounsbury in St Paul's in 1589, of Westminster in 1592, and of Canterbury in 1594, about which time he distinguished himself by a sermon preached at St Paul's Cross against the ambition of the Puritans On May 8, 1597, he was consecrated Bishop of London. From this time he had in effect the archiepiscopal power, for the archbishop being advanced in years, and unfit for business, committed the sole management of ecclesiastical affairs to Bishop Bancroft In 1600 Queen Elizabeth joined him with Dr Parkins and Dr Swale, in an embassy to Embden, to put an end to the differences between the English and Danes, but the embassy had no effect. In the beginning of King James's reign he was present at the conference at Hampton Court between the bishops and the Presbyterian ministers In 1604, upon Whitgift's death, he was promoted to the archbishopric of Canterbury and in 1608 was elected Chancellor of the University of Oxford, in the room of the Earl of Dorset He died Nov 2, 1610, of the stone, in his palace at Lambeth

Bancroft filled the see of Canterbury with great reputation he was a learned controversialist an excellent preacher a great statesman, and a vigilant governor of the Church He was however, rigid in his treatment of the Puritans and on that account has been spoken of with some severity He was the chief overseer of the last translation of the Bible By his will he bequeathed his body to be buried in Lambeth Chapel and all the books in his study to the archbishops for ever His remains were however, interred in Lambeth Church (See the *Biographia Britannica* edit 1778 vol i p 577 Wood's *Fasti Oxon*, Bishop Kennett's *MS Collections* MS Lansd Brit Mus 985 fol 155, 157 Chalmers's *Biogr Dict*, vol iii p 10?)

BAND, in architecture, a flat moulding, with a vertical face slightly projecting beyond the vertical or curved face of any moulding or parts of an edifice to which it is attached It is very extensively employed in edifices, and is used apparently to bind parts of buildings together, as the bands which are employed to bind the triglyphs of a Doric architrave [See Triglyphs] This moulding is most frequently used in the basement story of a building [see Basement], where it becomes a bold and striking feature (see the published designs of Palladio, Vignola, Scamozzi, and others) It is for the most part plain though sometimes enriched The term band and bandelet little band is often applied to what is more properly spoken a fillet [See Fillet] The band is however, broader in proportion than the fillet This moulding is also employed to encircle the shaft of columns [See Column and Rusticated Work] the palace of the Luxembourg at Paris, and the Pitti palace at Florence present very remarkable examples of banded columns Vitruvius calls the band *tænia* and *fascia* fascia is a term applied also to the flat face of the architrave A plain band is often placed in both public and private buildings either on or nearly on the same level with the floors, as if the original intention had been to finish the projecting ends of the floors with a flat band

BAND, also written BUND, or BEND, the Persian word for a dyke or artificial embankment is frequently met with as a component part of names in eastern geography for instance, in the name of the Persian river Band-Emir a branch of which passes near the ruins of Persepolis. This river received its appellation in honour of the Emir Azduddaula a governor of the province of Farsistan, or Persia Proper, who, about the year 1000 of our era, raised a dyke on the river near the ruins of Persepolis, for the purpose of procuring a supply of water to fertilize the land (Ker Porter's *Travels*, i 684, Sir W. Ouseley's *Travels*, ii 181)

BANDA ISLANDS are a group of small islands in the Eastern Archipelago, which lie about forty five miles to the south of Ceram, and are contained between the parallels of 4 22' and 4 33 S lat, and the meridians of 129 41' and 130 8' E They are nine in number, viz, Banda, Nera, Gonong, Way, Rossingen, Rohun, Swanjee, Pisang, and Capel, with several rocky islets. The group takes its name from the first of these, which is the largest island. There are doubtful accounts of these islands having been visited by one Verthema as early as 1504, in company with some Persian merchants, to whom they were well known, and who, with other Asiatic nations, had long traded to them. But the

first authenticated visit made by Europeans was by a squadron of Portuguese sent by Albuquerque from Malacca in 1511. That nation did not however appear in force to take possession till 1521, from which time they maintained a precarious footing for above sixty years — a long period of [illegible] and hostility. The hatred of the natives to the Portuguese readily induced them to join the Dutch in their expulsion, but they soon found that they had but changed masters. The islands were then occupied by the Dutch, who built a fort on Neira, called Nassau, in 1608, at which time the first English vessel had arrived from Bantam, under Captain Keeling. The Dutch however claiming the monopoly of trade, and being greatly superior in force, annoyed the English so much that they could scarcely obtain a cargo; but as this monopoly was never acknowledged by England, their ships continued to trade with the natives, though under very disadvantageous circumstances. In 1616 Rhun Island, the most barren of them all, having been made over to the English, an expedition was sent from Bantam, which established a fort and factory there. This rivalry naturally led to many quarrels, in all which the Dutch, being the stronger, succeeded in gaining the advantage; but in 1619 it was agreed by treaty that England should enjoy one third of the trade, a privilege however from which the Dutch contrived entirely to exclude the English. The Bandanese made various attempts to resist the hard terms imposed on them, as well as other islands in these seas, by the Dutch, who by dint of coercion retained their monopoly till 1796, when the Bandas were captured by the English without resistance, but were restored to Holland by the treaty of 1801. In September, 1811, they were again taken by the English, and once more restored in August 1816.

These islands produce the nutmeg almost exclusively, whence they are frequently termed the Nutmeg Islands, in contradistinction to the Amboynas, which yield the clove. From the nutmeg and mace the natives extract an oil as an article of trade. Their imports consist chiefly of rice, cloth, salt, pepper, and molasses. At the time of their being first visited by Europeans these islands were governed by an aristocracy of their own chiefs, or Sabandars.

The Bandas are subject to earthquakes. On Gonong-api, the highest of the group, there is a volcano 1940 feet high, constantly emitting smoke and frequently flame. On Neira, the chief settlement of the Dutch, which was their second government in the eastern seas, and the governor of the island always resides on it; this locality was selected on account of its spacious and commodious harbour, which is however difficult of access. The anchorage is protected by two forts, called Belgica and Nassau, and on Banda, the opposite, there are a fort and redoubts. All the islands are more or less fortified. Way Island is the most beautiful and picturesque, but there is no water on it; the inhabitants depend on rain or obtain supplies from the other islands. Rossangen is used as a state prison. The nutmeg grows on Banda, Neira, Way, and Gonong-api, not only in the rich soil of Banda, but also amidst the lavas of Gonong-api; the smaller islands chiefly raise provisions. The area of the whole group only occupies a space of [illegible] square miles.

Banda Island forms a right angle, five miles north and south, and six miles east and west, and about two miles average breadth.

The tides about these islands are strong, but not regular; they rise between nine and ten feet.

(Mandelslo's *Travels*, p. 112, Leyden 1719; Barrow; Crawfurd's *History of the Indian Archipelago*; Horsburgh's *Directory for the East Indies*.)

BANDA ORIENTAL was the name of that portion of the vice-royalty of Buenos Ayres which was situated to the east of the river Uruguay, and comprehended the present *Republica del Uruguay Oriental* and the country called the Seven Missions. Lying between the great body of the Spanish possessions and Brazil, it was, at the commencement of nearly every war between the Spaniards and Portuguese, occupied by the latter, but at the conclusion of peace entirely, or in part, restored to the former. When Buenos Ayres declared itself independent of Spain, the whole country belonged to the then viceroyalty of Buenos Ayres, but the continual civil wars by which the declaration of independence was followed in Buenos Ayres, induced the government of Brazil to take possession of the Banda Oriental in 1815. The republic of Buenos Ayres protested against this step, and as no amicable settlement could be made, a war began between Buenos Ayres and Brazil in 1825, which was terminated by a treaty of peace in 1828. By the articles of this treaty the northern district of the Banda Oriental, or the Seven Missions, was incorporated with the empire of Brazil, and the larger southern part declared an independent republic, which took the name of Republica del Uruguay Oriental. As however this country is less known by its present name than that of Banda Oriental, we shall here insert the geographical description of this region.

On the north it extends to 29° 30′ S. lat., and is here divided from the Seven Missions, which now constitute a part of the Brazilian province of Rio Grande do Sul, by the river Ibicuy-guazu. Its southernmost point, which extends to about 35° S. lat., is inclosed by the Atlantic Ocean and the wide embouchure of the Plata river. Its western boundary, which nearly reaches 58° W. long., is formed by the river Uruguay, which divides it from the republics of Entre Rios and Corrientes, which belong to the United States of Buenos Ayres. Thus it is inclosed by natural boundaries on three sides. On the east, where it joins the Brazilian province of Rio Grande do Sul, its boundary is also partly natural, being formed by a chain of mountains running north and south to nearly 32° S. lat., but from this point the boundary line extends to the south-east, and terminates on the coast after cutting lakes Mirim and Manguera. The most eastern point falls somewhat to the west of the fifty-second meridian.

The whole length of the country, from the most northern bend of the Ibicuy-guazu to the Pan de Assucar (Sugar-loaf) near Maldonado, is about 380 miles. In the northern part the breadth may extend 180 miles from east to west, and in the southern part, which is much wider, about 300 miles. Its mean breadth may be estimated at 240 miles. This would give a surface of 91,200 square miles, or nearly the area of Great Britain. Schäffer, in his description of Brazil, assigns to it an area of 1057[illegible] German square miles, equal to [illegible]27,[illegible]62 English, or more extensive than the surface of France; but that is doubtless a gross exaggeration, even if the Seven Missions are included.

By far the greatest part of the country is hilly and elevated. It forms, as it were, the most southern prolongation of the Serra do Mar (the sea-mountain range of Brazil), which extends northward to near the mouth of the Rio de St. Francisco ([illegible] S. lat.). In the Banda Oriental it rises to a height only on the southern coast, where it forms the hill of Cape St. Mary, the Pan de Assucar (Sugar-loaf), some miles to the west of Maldonado, the Monte Video on the west side of the bay to which it gives its name, and the hill of St. Juan, farther to the west near the mouth of a small river bearing that name. At no great distance however from the shore it takes the shape of an extensive table-land, whose surface in many places presents hardly any perceptible inequality, and in others is covered with extensive ranges of low hills. Both the plains and the hills are without trees, and afford only pasture for cattle. The hills are called Cochilhas, and the highest range, which forms the water-shed between the ocean and the river Uruguay, is named the Grand Cochilha. It extends into the Brazilian province of Rio Grande do Sul, where it is called Serra de Herval. The eastern declivities of the Grand Cochilha, which terminate abruptly in the plains about the lakes Mirim and dos Patos, at about twelve or twenty miles from their banks, are called Serra de los Tappes. On the west the table-land seems to extend to the banks of the river Uruguay, but here it is cut by numerous valleys, and presents the aspect of an extremely hilly country. In these valleys, as well as in those which lie along the southern coast west of Cape de S. Maria, many fertile tracts occur, in which the grains and fruits of Southern Europe succeed very well, but the remainder is only fit for pasture.

That portion of the Banda Oriental which extends along the coast to the north of Cape S. Maria, and about sixty or eighty miles inland, is low, and is a part of a very remarkable tract which occupies the eastern coast of South America from 2[illegible]° to 3[illegible]° S. lat., or from the island of St. Catherine to Cape de S. Maria. Nearly through its whole extent it is covered with sand, and intersected by innumerable lakes of different sizes. The greatest part of this low plain belongs to the Brazilian province of Rio Grande do Sul, where further particulars will be given. It is of very indifferent fertility.

of the illustrious navigator above-named to the eastern shores of that new continent, and which was completed by the subsequent settlement of the colony at Port Jackson, brought to light many new forms of marsupial mammals, which differed widely from the genuine opossums, but which were nevertheless associated, by the zoologists of the day, with the *Didelphyes* of Linnæus, from the single character of their agreement with these animals in the possession of the abdominal pouch. Thus it happened that the Linnæan genus, which the Swedish philosopher had himself left in a complete and natural state, soon became confused and overburthened by the association of numerous species, differing as widely in their habits and conformation as in their geographical distribution, and no longer presented that simplicity and uniformity of character which form the most unfailing tests of a natural group. At length it became evident that the only mode of restoring it to its original unity of character was to remodel the entire group. This task was undertaken by Illiger, Geoffroy, and other naturalists, and under their hands the genus *Didelphys* of Gmelin's edition of the *Systema Naturæ* was itself divided into distinct genera, definitely limited, and correctly defined. Zoologists still differed, however, with regard to the situation which these beings should occupy in the scale of animals. Some distributed the different genera into which the genus *Didelphys* of Gmelin had been thus broken up, throughout the various orders of mammals to which they seemed most nearly allied by the modifications of their dentition: others kept them all united together in a group, to which they gave the name of *Marsupialia*, or pouched animals; and these latter were again divided in opinion as to the rank which this new group should occupy among the other primary divisions of mammals, whether it should be considered, namely, as an order of itself, or merely as a family, or primary subdivision of the order *Carnivora*. Of these latter sentiments was Baron Cuvier when he first published his *Règne Animal*, but he subsequently changed his opinion upon this subject, and in the second edition of the same work adopts the notion of De Blainville, who is almost disposed to consider the marsupials as forming a class of themselves, equivalent, in point of rank or degree, to mammals, birds, reptiles, and fishes. 'In a word,' says M. Cuvier, 'it may be said that the marsupials form a distinct class parallel to that of the ordinary quadrupeds, and similarly divisible into orders; so that if both these classes were to be placed in two parallel columns, the opossums, the dasyures, and the bandicoots of the one would represent the *Insectivora* with long canines, such as the tenrecs and moles of the other; the phalangers and potoroos would represent the shrews and hedgehogs; the kangaroos, properly so called, can scarcely be compared with any other animals, but the wombats would form very good substitutes for the *Rodentia*; and, in fine, if we were to attend only to the character of the marsupial bones, and regard as marsupials all the animals which possess them, the *Ornithorhynchi* and *Echidnæ* would form a group parallel to that of the *Edentata*.' Neither Baron Cuvier, nor, as far as we are aware, any other zoologist, has adopted these sentiments, to the full extent here expressed; but most, if not all, are agreed in regarding the marsupials as forming an order of themselves, which is usually placed between the *Carnivora* and *Rodentia*.

The leading character of this order, and indeed the only one which is common to all the species that it contains, but which is the more marked and valuable from being absolutely peculiar to this group of animals, consists in the abdominal pouch or marsupium, from which the name of the order is derived, and in which, as in a second womb, the young are deposited upon their exclusion from the real uterus. The period of actual gestation in these animals is of very short duration. The production of the young, as compared with other mammals, may be said to be always premature; they are brought forth in an almost fœtal state, but are preserved and nurtured by being deposited in the marsupium or abdominal pouch, with which nature has provided the female parent for their reception, and in which they continue to reside till they have acquired sufficient size and strength to go abroad and shift for themselves. Many other singularities of form and habits necessarily result from this peculiarity of physical structure. [See MARSUPIALS.]

The animals which more properly form the subject of the present article, the *Perameles* of naturalists, and bandicoots of the colonists (a name which properly belongs to the great rat of India, *Mus giganteus*, but which, from a vague resemblance in size and appearance, the early colonists of Sydney applied to the animals at present under consideration), though they agree in the most prominent characters of their dentition with some of the marsupials, and in the form of their extremities and the number of their toes with others, yet differ essentially from all in their habits and economy. In the number, form, and arrangement of their canine and molar teeth they agree in all respects with the opossums of America and the dasyures of Australia; that is to say, that they have two canines and fourteen molars in each jaw; but they differ widely in the number of their incisors, and in this respect offer a unique combination which is found in no other known genus of mammals. Of the incisor teeth there are ten in the upper jaw, and only six in the lower; and the external on each side, particularly in the upper jaw, is insulated, and stands apart both from the canine and from the other incisors: it is likewise much larger than the intermediate incisors, and its form is that of an ordinary canine tooth, of which, indeed, it appears to exercise all the functions.

The hind legs are considerably longer than the fore, and the number and form of the toes are in all respects similar to those of the kangaroos. It was this similarity that induced M. Geoffroy St. Hilaire to suppose that the pace of the bandicoots also resembled that of the kangaroos. This, however, is far from being the case; the disproportion between their anterior and posterior extremities is by no means so great as to compel the bandicoots to hop upon the hind legs only, like the kangaroos, though it is certainly sufficiently so to prevent them from walking like ordinary quadrupeds. Their actual pace resembles that of the hare, and consists of a succession of leaps from the hind to the fore feet, but it is not very rapid, nor can they maintain it for any great length of time. On the fore feet there are five toes, of which the three middle are long and stout, but the lateral ones are so short that they do not touch the ground, and are consequently useless in walking, though they may be of great service in burrowing. The hind feet have but four toes each, and of these the third is the largest of all, whilst the two internal are united under the same skin, and appear, externally, like a single toe armed with two claws. This is precisely the arrangement and form which we find in the kangaroos; but the feet of the bandicoots differ, in being provided with broad powerful claws, which enable them to burrow with astonishing facility, and to scratch up the ground in search of roots. They likewise differ from the kangaroos in having a small fleshy tubercle, in lieu of a thumb, upon the hind feet, and in having the last, or ungual phalange of all the toes divided in front by a small incision, as in the pangolins and ant-eaters, a structure which gives a much firmer attachment to the claw, and vastly increases their power of burrowing. In other respects the bandicoots are chiefly characterised by their long attenuated muzzles, short upright ears, lengthened bodies, and moderate rat-like tails, which are not prehensile, as is the case with many genera of this order, nor have these animals the power of ascending trees. With regard to the period of gestation, the number of young, and the mode of their introduction into the abdominal pouch of the female parent, we have no observations particularly applicable to the bandicoots. It is only known that they resemble the other marsupials in the premature production of their young, and in nourishing them for some time afterwards in the abdominal pouch of the mother, and that this pouch contains the mammary organs for that purpose.

Two species only have been hitherto satisfactorily described, but there are various indications of others, which it is to be hoped those who have the opportunity of observing these interesting animals in their native climates will soon make known. The pretended species, described by MM. Quoy and Gaimard in the zoological part of Freycinet's *Voyage*, under the name of *Perameles Bougainvillii*, is but the young of the common bandicoot (*Perameles nasuta*). Of the large species mentioned by the same naturalists as having been obtained in the Blue Mountains, and which is said to have measured upwards of two feet in length, we know nothing more than what is reported in this scanty notice; the shipwreck of their vessel, the Uranie, and the consequent loss of the specimen having prevented MM. Quoy and Gaimard from giving a more detailed description of it. The following are the only two species of which we possess authentic descriptions.



[Long-nosed Bandicoot.]

1. *The long-nosed Bandicoot* (*P. nasuta*, Geoff. St. Hilaire), measures about a foot and a half in length from the extremity of the muzzle to the origin of the tail; the head is four inches long, the tail six, the hind legs also six, and the fore legs only three. The ears are erect, pointed, and covered with short hair; the eyes are particularly small; the nose remarkably long, pointed, and naked at the extremity; and the tail attenuated, and, though better covered with hair, bearing some resemblance to that of a large rat. This organ is not used by the bandicoot to support the body in a sitting posture, like that of the kangaroo, as has been imagined by M. Geoffroy St. Hilaire, to whom we owe the first description of this species as well as the establishment of the present genus; neither are the progressive movements of these animals similar to those of the kangaroos, as the same eminent zoologist conceived, from the form and proportions of the extremities, that they might be. The pace of the bandicoot, as already observed, resembles that of our hares and rabbits, which certainly approximates more nearly to the saltigrade pace of the kangaroos, gerboas, and helamys, than any other species of locomotion with which we are acquainted: so far M. Geoffroy's conjecture was well founded, and he has certainly good reason in his observation that analogous structures rarely deceive us in reasoning upon their functions. The external coat of the long-nosed bandicoot is composed of coarse bristly hair, in colour very nearly resembling that of the common rat (*Mus decumanus*), except that it is of a more sandy shade on the upper parts of the body, and of a more clear silvery white beneath; under this long outer hair there is an interior coat of soft, ash-coloured wool or fur, which protects the animal from the cold and variations of temperature, for it appears to be an inhabitant of the mountainous parts of Australia, principally if not exclusively. The tail is of a rather darker colour than the body, and the whole animal, except in the great length and pointed form of the nose, has much the appearance of an overgrown rat. The form and characters of its teeth would lead us to suppose that it fed upon insects and other similar animal substances; and M. Geoffroy even imagines that it may use its long snout for the purpose of rooting up the earth like a pig in search of worms and grubs: the colonists, however, affirm that the bandicoots are purely herbivorous animals, and that the principal part of their food consists of roots, which they dig up with the powerful and sharp claws of their fore feet. In the neighbourhood of human habitations they frequently enter into the granaries, and do as much mischief to the corn as the rats and mice of our own country. The Australians have, however, one advantage over the European farmers in this respect,—the bandicoot is more easily excluded than the rat, for it cannot, like that destructive species of vermin, eat its way through the planks and timbers, or even through the brick walls of the buildings. It is probably from this habit of committing petty depredations upon the farm-yards and granaries, as well as from the general similarity of their external appearance, that the colonists of New South Wales sometimes confound the bandicoots with various species of murine animals originally found in the country under the common denomination of native rats and mice. Nor is it at all improbable, notwithstanding the assertion of the colonists to the contrary, that M. Geoffroy's conjecture as to the insectivorous habits of this animal may be at least partly if not entirely true. The common rat, with teeth much less adapted for living upon flesh than those of the bandicoots, is well known to have decidedly carnivorous propensities; and, as M. Geoffroy very correctly observes, it is seldom that analogous forms of dentition fail to indicate analogous appetites.

2. *The blunt-nosed Bandicoot* (*P. obesula*, Geoff.), first described by Dr. Shaw under the names of the *porcupine Opossum* and *didelphys Obesula*, is readily distinguished from the last species by the shortness and bluntness of its snout, and by the broad round form of its ears. The arrangement of the teeth also differs in some degree from that of the long-nosed bandicoot. The external incisors are more nearly in contact with the canines and central incisors on each side of them; the molars immediately succeeding the canines, and answering to the false molars of the carnivora, are contiguous to one another and of a triangular form; and the posterior molars are more flattened on the crowns. This latter character would seem to intimate that the present species was more purely herbivorous than the last, and future observation may probably confirm this conjecture. The colour and quality of the hair and fur are the same as in the long-nosed bandicoot. The specimen described and figured by Dr. Shaw was a young individual about the size of a half grown rat; that noticed by M. Geoffroy, and which the state of its teeth showed to be an old animal, was more than as large again, or a little less than the long-nosed bandicoot. These animals are found both in Van Diemen's Land and on the Australian continent: whether the same species inhabit both these localities we have not, at present, the means of determining.

BANDINELLI, BACCIO, an eminent sculptor, created cavalier by Clement VII. and Charles V., was born in 1487, and died at the age of seventy-two, in 1559. Benvenuto Cellini speaks several times of Bandinelli, who, in his age, approached very near to the genius of Michael Angelo. Michael Angelo himself, though personally no friend to Bandinelli, spoke in praise of his designs, adding, that his execution of them would have been, in all probability, of equal merit, had not avarice induced him to adopt too hasty and loose a manner. According to Cellini, Bandinelli's temper was arrogant and overbearing. (Vasari, tom. viii. p. 65; Benvenuto Cellini's *Memoirs of Himself*, chapters i. and ix.)

BANDITTI. This word, though seldom used by the Italians in our sense, for 'bands of robbers,' is derived from the Italian verb *bandire*, to banish or put to the ban, whence the participle *bandito*, banished or outlawed, and the substantive *bandito*, an outlawed man (plural *banditi*), or outlawed men. Correctly, therefore, the word should not be bandi*tti*, but bandi*ti*. The term seems to have been introduced into our language at least as early as the time of Shakspeare, but whoever first imported it and confined its signification to robbers, departed from the original extensive sense of the word, which means a man banished on any account, as for political delinquencies or opinions, plots, religious notions, partisanship, &c. &c. Thus, after Danté and the Ghibellines were expelled from Florence by the Guelphs, they might be called *banditi*, though they were honourable men, representing a defeated political party or faction, and never robbers. Bembo and other *teste di lingua*, or classical writers, who form authority on the subject of Italian idiom, employ the term *banditi* almost exclusively in speaking of political exiles. The great Tuscan dictionary *Della Crusca* gives *esiliato* as the synonym of *bandito*, and *exilio damnatus* as the Latin for both. Some Italian writers of the present day apply the word as we do to robbers; but until recently, we do not often find the term banditi so used by Italian authors of high authority. Giannone, who as the historian of Naples (the country in which these troops of robbers have most abounded in all ages) had to make frequent mention of them, generally, however, called them banditi. But Giannone was neither a Tuscan, nor a purist in language. In the south of Italy, the only part of the peninsula where such lawless associations have existed for many years, the robbers are popularly called *briganti*, and never, by any chance, banditi. The French, during their long and sanguinary warfare for the subjugation of Calabria, called by the name of *brigands* both those who were professional robbers, and those who were partisans of the Bourbon King of Naples, Ferdinand, whom the arms of the

French had driven out of his continental dominions to Sicily.

Those organized bands of robbers have been fostered in Italy by the mountainous nature of a great part of the peninsula, by the division of the country into numerous small states, which too often enabled the robbers, by crossing a frontier, to put themselves in safety, by frequent revolutions, and by weak governments. In modern days, however, their excesses have almost been confined to lower Italy, and the States of the Church and the kingdom of Naples, and regular or numerous bands of robbers have been unknown in Upper Italy, in Lombardy, Piedmont, and Tuscany, for many years. Their principal haunts in recent times have been the country about the frontiers of the Roman and Neapolitan states, from the southern end of the Pontine marshes to the districts of Terracina, Itri, and Fondi; and the valley of the Ponte di Bovino, a narrow mountain-pass, through which runs the high road from Naples, the capital of the kingdom, to the vast plains of Apulia, and the rich provinces of Bari, Lecce, and the Terra d'Otranto. In the first of these positions they were beaten up and almost exterminated by the Austrian troops in 1823; and a little later the valley of Bovino was wholly cleared of them. There have been occasionally highway robberies since then, but organized societies with their captains, their lieutenants, and chaplains, have never been again formed, nor have we since heard of any band at all like those which, from 1812 to 1823, exercised their calling on a grand scale, and caused universal consternation to such as had to travel through the districts which they frequented. The most remarkable Italian bandit chiefs of our times were the three brothers Vardarelli, and Don Ciro Anicchiarico. They were all Neapolitans, and the last of them (Don Ciro) a priest, an abbé, and a man of considerable education, who was accustomed to celebrate mass to his band, on solemn occasions, and who quoted Latin and Virgil in defences that he sent in to the judicial authorities. The history of this priest-robber, who, not contented with being a successful leader of banditti, which he was for many years, put himself at the head of a secret political society, or rather a series of secret societies, that aimed at nothing less than entirely revolutionizing the whole of Italy from the extremity of Calabria to the Alps, and establishing a federal republic, is one of the most astonishing authenticated records of modern times. It presents the picture of a state of things which, were it not supported by legal documents, and the testimony of eye-witnesses, would scarcely be credited to have existed in a European country, and only a few years ago.

Those who are curious to investigate the subject of Don Ciro, in particular, may refer to an *Essay on the Carbonari*, by the late Baron Bertholdi. Details of other chiefs and robbers, with general views of their systems, may be found in *Travels in the Southern Provinces of the Kingdom of Naples*, by the Honourable Keppel Craven; *Three Months' Residence in the Mountains North-east of Rome*, by Maria Graham; and in the *Lives of Celebrated Banditti*, by C. MacFarlane.

BANE or BENN, DR. JAMES, archdeacon, afterwards bishop of St. Andrews. In the former station we find him A.D. 1319, when the pope appointed him and certain other ecclesiastics to determine a dispute between the monastery of Dunfermline and the Bishop of Dunblane respecting tithes. (Connel *On Tithes*, vol. i. p. 82.) In 1325 he was joined in an embassy to France to renew the league with that crown, and is then called 'Jacobus Bene, archidiaconus Sti. Andreæ, et legum professor.'

We are told that the canon law was not introduced into Scotland till the year 1242; and the learned author of the *Life of Melville* (vol. i. p. 211) says, that 'at the commencement of the fifteenth century no university existed in Scotland, and the youth who were desirous of obtaining a liberal education were under the necessity of seeking it abroad.' We are disposed to question the accuracy of both these opinions. The mere probabilities of the case appear to be against them; and the facts we shall now mention raise the evidence to a higher degree than probability. Hector Boëthius states expressly that a university was founded at Aberdeen for theology and the laws, by Edward, bishop of that see, A.D. 1157. Keith's *Catalogue of Bishops* is incomplete at that date, and does not clearly show the existence of Bishop Edward; but had Keith, as he promised to do, annexed to his work the bull of confirmation by Pope Adrian IV., on the translation of the see of Mortlich to Aberdeen, in 1157, it would have been seen that the bull was granted to Bishop Edward. (See Connel *On Tithes*, vol. i. p. 59.) And in the decretal letters from Pope Innocent III., which appear *Decret. Greg.* lib. iii. tit. 49, c. 6, to the King of Scots, and lib. iii. tit. 24, c. 9, lib. iv. tit. 20, c. 6, and lib. v. tit. 39, c. 28, to the bishop, archdeacon, and abbot of St. Andrews respectively, there are distinct references to the canons. We find also that Bishop Alexander de Kynynmond, who ruled the see of Aberdeen from 1357, did, agreeably to what seems to have been the common practice of the place, teach the civil and canon laws on ferial days; and, as above noticed, we have Archdeacon Bane 'legum professor' nearly a century prior to Bishop Wardlaw's foundation at St. Andrews, which yet Dr. M'Crie regards as the earliest academical institution in Scotland. The truth, however, seems to be, that Bishop Wardlaw of St. Andrews, and Bishop Elphinstone of Aberdeen, only enlarged the circle of the sciences taught in those cities, and, by the regal and papal grants which they obtained, gave unity and influence to the university labours. Accordingly, though the papal confirmation of the university of St. Andrews was obtained only in 1413, yet that same year no less than thirteen persons were made Bachelors of Arts (M'Crie's *Melville*, vol. i. p. 212), though an interval of but two years had passed since Wardlaw's first foundation; and in 1414 seven of the above bachelors were made Masters of Arts. (*Id. ib.*) For upwards of a century after that time the congregations of the university were held, as they probably had previously been, in the Augustine priory of St. Andrews, no college buildings having been at first contemplated for the university of St. Andrews, any more than for that of Glasgow, or indeed many other universities, not excepting that of Paris, the great prototype of those institutions.

In 1328 Bane was chosen Bishop of St. Andrews by free election of the canons; but being himself at the court of Rome at the time, he obtained the episcopate by the collation of Pope John XXII., before an account of the election arrived. He was bishop in 1329, and that year, in consideration of a sum of 200 marks, he granted a charter of favour and protection, with a general acknowledgment of existing immunities, to the priory of Coldingham. (Chalmers's *Caledonia*, vol. ii. p. 326.) In 1331 he set the crown on the head of King David II., and was soon after constituted Lord Chamberlain of Scotland,—then an officer of great importance, and vested with large powers both ministerial and judicial. He died 22nd September, 1332, at Bruges, whither he had fled on the success of Edward Baliol, and was buried in the abbey of Eckshot.

BANFF, or, as it is sometimes written, and always pronounced, BAMFF, a royal burgh and the chief town of the county of Banff, in Scotland, is situated on a rising ground on the west side of the Deveron, near the entrance of that river into the Moray Frith. It is 125 miles nearly due north of Edinburgh, and 39 N.W. of Aberdeen. The distance from Edinburgh by the road is 165 miles, and from Aberdeen 45. With the latter town it carries on an extensive intercourse. Banff is generally admired by strangers for the neatness of its appearance. It has several well-built streets, which, though somewhat antiquated in their style of building, are remarkable for their cleanness. It was erected into a royal burgh in the year 1372 by Robert II. The privileges which were granted to it by that King were confirmed by James VI. and Charles II. The tradition that the place was made a royal burgh by Canmore, being unsupported by evidence of any kind, is discredited by the more intelligent inhabitants. It had once a castle of considerable importance, the remains of which still exist. It was a constabulary, long under the hereditary government of the family of Buchan. There was also in the town a convent of Carmelites, or White Friars; the rents, place, and lands whereof were annexed to the old college of Aberdeen by King James VI. in 1617.

Over the Deveron there is a beautiful stone bridge of seven arches. The bridge commands a somewhat extensive and most delightful view, embracing Duff House, the seat of the Earl of Fife, which rises out of a beautiful green park surrounded by a forest of trees. Banff has a very handsome church, built in 1790, which accommodates from 1500 to 1800 persons. The Episcopalians, the Roman Catholics, the Seceders from the Church of Scotland, the Wesleyan Methodists, and the Independents, have severally places of worship, but none of these sects are numerous. The town house, which was built in 1798, has a hand

some spire. In the same year a new prison was erected, agreeably to the principles of Howard. There is an excellent academy in Banff, supported by the funds of the burgh, in which every elementary branch of education is taught. There are also several private schools, among which are two female boarding-schools. Some years since a scientific institution was formed, which, considering the extent of the place, has been remarkably prosperous. The harbour of Banff is so bad as to prevent many vessels from entering it, and this circumstance, consequently, is much against the prosperity of the place. The principal exports consist of corn, cattle, salmon, and herrings. The herring-fishing for the last few years has been carried on to a great extent, and on the whole with success. The manufactures of Banff are confined to thread, linen, stockings, soap, and leather. There are also four branch banking establishments. It has several libraries, of some extent and value, belonging to various societies. Banff has a weekly market on Friday, and four annual fairs. Like most other towns in the north of Scotland, it suffered severely from the destructive floods of August, 1829. Part of the town, by the overflowing of the Deveron, was filled with water to the height of four or five feet. Several of the houses were undermined and carried away, and serious damage was done to various descriptions of property. In one of the streets, three of the horses which were running in the royal mail were drowned while attempting to get through the water. The lower grounds around the mansion of the Earl of Fife were covered with water to the depth of fourteen feet.

Like all other Scottish royal burghs, the town council, which consists of seventeen individuals, was formerly self-elected, and they, in conjunction with the town councils of Elgin, Cullen, Inverury, and Kintore, had the right of electing a member to serve in parliament. The election took place in each of the towns in rotation. Since the passing of the Burgh Reform Bill, the town council, as in the other royal burghs included in that act, are elected by the 10*l.* electors, qualified under the statute, and the provost and four magistrates by the council. By the Reform Act, the neighbouring town of Macduff has been incorporated with Banff, and both made one burgh, in the election of a member of parliament. Their united constituency is under 200. Peterhead, by the same act, has been added to the Banff district of burghs. In 1831 the population of the town and parish was 3711.

The number of vessels registered at Banff is twenty-four, of which seven are schooners, and the rest sloops or smacks. The tonnage varies from 16 to 105. (See Innes's *Tide Tables* for 1834.) The Banff and London Shipping Company have three smacks, with excellent accommodation for passengers, which sail regularly between Banff and London. (Pennant's *Tour through Scotland;* Cordiner's *Antiquities of North Britain;* Sir John Sinclair's *General Report of Scotland;* Buchanan's *History of Scotland; Population Reports; Boundary Reports.*)

BANFFSHIRE, a county in the north of Scotland, comprehending the districts of Strathdovern, Boyne, Enzie, Strathaven, Balvenie, and part of Buchan. It was a sheriffdom at least as early as the time of King David I. It lies on a long slope between a range of the Grampian Hills and the Moray Frith. It is bounded on the east and south-east by Aberdeenshire, on the west by Morayshire, and on the north by the Moray Frith. Its length, from east to west, has been variously stated. According to the latest and most accurate measurement, that part of the county which is bounded by the sea is thirty-four miles in length; from its northern boundary to the head of Glen Avon, where the county is sharpened to a point, it measures fifty miles. Banffshire contains 647 square miles, or, exclusive of a small space covered with water, 412,800 English acres. The face of the country is agreeably diversified with hills and dales, woods and rivers. For about thirty miles along the coast, the soil, which chiefly consists of sand and loam, is excellent, and produces heavy crops. The coast is mostly rocky, but not high. It is impossible, from the irregularity of the hills and mountains, to say how far inland the good soil along the coast generally runs. It varies from two or three to seven or eight miles. Here the land is in a state of the highest cultivation. The southern part of the country is mostly mountainous, and is consequently pastoral rather than agricultural. Even here, however, there are many beautiful and fertile valleys. In the upper or hilly districts there are large tracts of land peculiarly adapted for grazing. These are for the most part well sheltered with natural wood, and abundantly watered by the rivers and streams with which the county abounds. The Spey, which is one of the largest rivers in Scotland, and the most rapid, runs along its western boundaries, and the Deveron waters its eastern confines. The Avon, a branch of the Spey, rises in Loch Avon, in the extreme south-western angle of this county. [See AVON.] In some parts of Banffshire, particularly in the mountainous districts, the scenery is remarkably picturesque.

Some of the mountains in Banffshire are among the highest in Great Britain. Of these the principal are Cairngorm, which is 4080 feet above the level of the sea; Belrinnes, which is 2747 feet high; and Knockhill, the Buck of Cabrach, and Corryhabie, which are severally about 2500. Several of the mountains are covered on their tops with regular beds of moss, containing the remains of trees, plants, and vegetables. There are others whose summits of granite protrude through thick beds of gneiss, which passes into mica-slate. The most common rocks in the county are granite, gneiss, graywacke, graywacke-slate, quartz, sienite, old red sandstone, mica-slate, clay-slate, freestone, and limestone of recent formation. At Portsoy, near the coast, is a bed of serpentine, generally called Portsoy marble. There is also a species of granite in the same place, which, when polished, exhibits various figures, some of them fancifully supposed to resemble Arabic and Hebrew characters. In several parts of the county, lead, iron, and other minerals have been discovered, but in no instance have they been worked. In the neighbourhood of Keith there is a vein of sulphuret of antimony imbedded in fluor spar; and about a mile westward of Banff is a bed of blue clay containing various organic remains. Fossil fish, or ichthyolites, imbedded in nodules, have lately been discovered in the neighbourhood of Banff. Rock crystals and topazes are found on Cairngorm. They were formerly much sought after, and brought a high price; but of late years similar stones have been imported from Brazil, where they are so abundant as to enable the merchants who import them to sell them at a hundredth part of the price often given by lapidaries for those found on Cairngorm. Hones or whetstones are procured in Balvenie.

The principal towns in the county are Banff, the capital; Cullen, a royal burgh; Keith, Newmill, Dufftown, Gardenstown, Portsoy, Buckie, and Macduff. The population of these places varies from 1000 to 3000. Perhaps there is no county in Scotland, in proportion to its size, that has so many towns and villages. Hence the 10*l.* voters in the election of a county member are very numerous.

The manufactures in Banffshire are inconsiderable. The principal are weaving, bleaching, flax-dressing, tanning, and distilling. The last branch of industry has, for the last ten or twelve years, been carried on to a very considerable extent, and on the whole with fair profits. The consequence has been the almost entire suppression of smuggling, which had been previously very general in the mountainous districts of the country.

The salmon-fishing is carried on successfully in the rivers Deveron and Spey, but especially in the latter. The revenue derived from the salmon-fishing in the Spey is 8000*l.* per annum; that derived from the fishing in the Deveron is 2000*l.* For many years past considerable quantities have been exported, chiefly to the London market. The herring-fishing is now carried on along the coast on a large scale. In 1815 there were only two boats, of fifteen tons each, engaged in this branch of business; but for some years past the number of boats of the above tonnage has varied from 400 to 500. Perhaps, with the exception of Wick, none of the stations in the north of Scotland have proved so favourable for the herring-fishing as those in the county of Banff. In several instances, along the coast of Banffshire, this branch of industry has been prosecuted with great success; while at every other station farther north there has been a complete failure. The quantity of herrings taken in this county in 1826 was computed to be worth 100,000*l.*

The shipping trade is considerable for the extent of the county. It is chiefly carried on at the ports of Banff, Macduff, Portsoy, and Gardenston. The exports principally consist of grain, meal, black cattle, swine, and other live stock. The imports are, for the most part, timber, coals, iron, &c. The exports of grain have of late years been considerable. In the year ending June, 1831, the quantity shipped for the London market alone was 65,000 quarters.

Agriculture is, in general, conducted on the most approved principles in Banffshire. The Farmers' Society, which has now been in existence for many years, has contributed much to the improved system of farming. In the lower districts of the county the fields are well laid out, and abundantly manured. Some years ago the favourite manure was a mixture of lime and bone-dust; but the latter commodity having of late become scarce and dear, the farmers were led to resort to some other kinds of manure. From the success of some experiments which have just been made, it is believed that kelp, after undergoing a certain preparatory process, will be found an excellent substitute. The fields, on most of the large farms, are enclosed either with hedges or stone dykes, but generally the latter. Wheat, barley, bear, and oats are the kinds of grain chiefly grown. The quantity of land which yet remains to be brought under culture is very considerable: its proportion to the cultivated land has never been satisfactorily ascertained. Some of those best acquainted with the county are of opinion that one-half of it has not yet been brought under the plough. A very large portion of this waste land could never, owing to the sterility of the soil, be cultivated with profit; but there are very large tracts which would amply repay the capital embarked in bringing them into cultivation. The spirit of agricultural enterprise has extended itself so rapidly of late, that the quantity of arable land is nearly double what it was twenty years ago. All the farms which are of any extent are under a regular rotation of cropping. The average size is from 100 to 200 arable acres, with a certain quantity of moorland or pasture, which varies according to the part of the county in which the farms are situated. In the district along the sea-coast there is very little moorland or pasture; but on a farm in the mountainous parts, the uncultivated land which is capable of cultivation is often nearly as large as the arable land itself. The rent per acre is, on an average, about twenty-two shillings. The leases are generally, as is the case throughout the north of Scotland, for a term of nineteen years. A few individuals hold their leases for life. The cattle and stock of every kind are of the best breeds that can be procured.

The lands in the county are almost all under entail, which greatly interferes with its improvement. The principal proprietors are the Duke of Gordon, the Earl of Seafield, and the Earl of Fife.

The climate is variable. Along the coast it is dry and genial, and the crops consequently ripen well; but in the mountainous districts the climate is cold and humid, and the harvest in those parts is therefore late. It is considered an early season when the harvest is completed in the upper districts by the middle of October.

In the Enzie, and some other parts of the county, the great body of the population are Roman Catholics; but taking the inhabitants of the county generally, perhaps a fourth part of them do not belong to that persuasion. In some of the upper districts the Gaelic language is spoken, but not generally.

Along the sea-coast, which is much indented, and has generally a bold and precipitous character, the inhabitants are well supplied with coals; but the expense of inland carriage puts it beyond the means of the population in the higher districts to procure this species of fuel: they are consequently obliged to use peat.

In Banffshire there are numerous noblemen's and gentlemen's seats. The principal are, Gordon Castle, and Glenfiddich, belonging to the Duke of Gordon; Duff House, Rothiemay, and Balvenie Castle, belonging to the Earl of Fife (this last belonged to a family of Douglas); Banff Castle, Cullen House, and Rannas, the property of the Earl of Seafield; Birkenbog and Forglen Castle, belonging to Sir George Abercromby, Bart.; and the Castle of Boharm, one of the castles of the powerful family of De Moravia; the elder branch, having conquered Sutherland, became earls of that name, from whom the present Duchess-Countess of Sutherland is lineally descended: it is now the property of Mr. Macdonald Grant. Some of these are magnificent mansions, and their appearance is greatly improved by the beautiful parks and plantations with which they are surrounded.

The remains of antiquity are very numerous in Banffshire. Near Cullen are the ruins of the antient Castle of Findlater, which stood on a high rock projecting into the sea. It was seized, some time in the fifteenth century, by the Gordon family, but was restored, in 1562, to its rightful proprietors, by Queen Mary. There are traces of other castles at Deskford, Galval, Balvenie, &c. The churches of Mortlich and of Gamrie are also remarkable on account of their antiquity. Mortlich was, for about a century, the seat of a bishop; but King David I. translated the episcopal see to Old Aberdeen, and, as it was formerly poor and ill provided, conferred on it many lands. The church of Gamrie is called 'the Kirk of Skulls,' from the circumstance of the bones of the Norsemen who fell in battle on an adjoining field, called 'Bloody Pots,' having been built into its walls. Though this church was erected in the year 1010, it continued to be used as the parish place of worship till 1830, a period of 820 years.

There are several cairns or tumuli in the county. These were the places of interment of the antient Caledonians, and also of the Norsemen; for they were common to both nations. About seventy years since a very remarkable cairn was destroyed at Kilhillock. It was sixty feet in diameter, and sixteen in height. On breaking open the cairn, a stone coffin was found, which contained the skeleton of a human body, quite complete, lying at full length. Beside the skeleton was a deer's horn, which Pennant conjectures to have been symbolical of the favourite amusement of the deceased. There is a number of cairns on the Cotton Hill, which some antiquarians think were erected in memory of the Scots who were slain in the battle with the Danes which, according to Buchanan, was fought in the neighbourhood, and in which the Norsemen were completely defeated by Indulf, King of Scotland. Many other places in the county are pointed out at which important battles were fought between the Scots and Norsemen in the tenth and eleventh centuries; at which period the shores of the Moray Frith were constantly infested by these northern adventurers.

Banffshire has given birth to a number of distinguished men. Archbishop Sharp was born within a mile of the capital of the county, where his ancestors had resided for some centuries. George Baird of Auchmeddan, who, as sheriff of the county, distinguished himself in the time of the Covenanters; Thomas Ruddiman, the grammarian; Walter Goodall, the well-known defender of Queen Mary; and James Ferguson, the astronomer, were all born in the county of Banff.

Banffshire is divided into twenty-four parishes, each of which has its own schoolmaster, church, and clergyman. A considerable part of the county formerly belonged to the rich and extensive province of Moray. Part of it is now in the synod of Moray, and the remainder belongs to the synod of Aberdeen.

The parochial schoolmasters of Banffshire, with those of the adjoining counties of Elgin and Aberdeen, have lately had an unexpected addition of nearly 30*l.* per annum made to their incomes by the bequest of the late James Dick, of London. This gentleman, having been born in the county of Elgin, partly educated in the county of Banff, and partly in that of Aberdeen, and having, entirely through the means of his education, raised himself from the most humble circumstances to opulence, left the whole of his fortune, at his death in 1827, to the parochial schoolmasters of these three counties. The amount of the bequest was 130,000*l.*, which, in terms of the deceased's will, has been invested in the funds for the purposes mentioned. The parochial schoolmasters of these counties are consequently better provided for than those of any other county in Scotland. It remains to be seen whether this bequest will, in its consequences, be advantageous or otherwise.

The gross rent of Banffshire, according to the assessment in 1811 for the property-tax, was, for land, 79,396*l.* 3*s.* 4*d.*, and for houses, 5514*l.* 2*s.* The county sends a member to Parliament. Previous to the Reform Bill, the right of election was vested in 51 freeholders. The constituency is now about 400. In 1831 the population was 48,604, of whom 22,743 were males, and 25,816 were females. This population was an increase of 5000 since 1821, and of nearly 12,000 since 1811. Previous to this last date, the population of the county was, for many years, almost stationary in amount.

The county of Banff was one of the few Scottish shires the sheriffship of which had not become wholly hereditary at the date of the Jurisdiction Act. The first sheriff after that time was Mr. Robert Pringle of Edgefield. He continued in office till 1754, when, being made a lord of session, he was succeeded by Mr. David Ross of Ankerville, who

also was ultimately raised to the bench of the same court. For the last seventy years the sheriffship of the county has been in the family of Urquhart of Meldrum, the present sheriff having, in 1784, succeeded his father, who was twenty years in the office.

(Buchanan's *History of Scotland;* Guthrie's *History of Scotland;* Pennant's *Tour;* Douglas's *Journey through the North of Scotland;* Shaw's *History of the Province of Moray;* Sir John Sinclair's *General Report of Scotland;* Rev. Charles Cordiner's *Antiquities of North Britain; Beauties of Scotland; Parliamentary Returns,* &c.)

BANGALORE, or BANGALURA, an important fortified town in the territory of the Rajah of Mysore, situated in 12° 57′ N. lat., 77° 38′ E. long. This city was founded during the reign of Hyder Ali, the Mohammedan sovereign of Mysore, and during the continuance of his judicious government it became a place of considerable importance, enjoying an extensive trade and containing numerous manufactures. As a fortress, Bangalore was a place of some strength. The fortifications were regular, and constructed of solid materials, surrounded by a deep ditch cut in the solid rock, and by a spacious glacis. The fort is now in ruins, having been destroyed by Tippoo Sultan after he found it incapable of resisting the scientific and impetuous attacks of European troops. The only good building within the walls of the fortress was the palace, or *mahal.* This, although built of mud, was not without some degree of magnificence. It has lately served as quarters for the officers of an European regiment. The ruins of the mud wall that enclosed the small village which occupied the place before Hyder founded the city of Bangalore are still visible in the centre of the fort. The town is built about two miles from the fortifications.

The decline of its prosperity began during the early part of the reign of Tippoo, who, being unfriendly to the governments at Arcot and Hyderabad, prohibited his subjects at Bangalore from maintaining any commercial intercourse with those places. He afterwards sent large quantities of goods to Bangalore, and these he forced the merchants to purchase at high prices, by which oppressions he caused many of the more wealthy inhabitants to leave the city. In 1791 Lord Cornwallis took the fort of Bangalore by assault, and the town was on that occasion plundered by the soldiers. When, shortly after, the English withdrew, Tippoo encouraged many of those inhabitants to return, whom, by his oppressions, he had previously driven away, promising them privileges and protection; but no sooner had he succeeded in this object than he surrounded the town with his troops, and, under the pretence that the inhabitants had been friendly to the English, he laid them under such heavy contributions, that even the women were obliged to part with their most trifling ornaments.

After the death of Tippoo, when the territory of Mysore was placed, by the East India Company, under the now reigning Hindu Rajah or Curtur, Krishna, then a minor, and with whose government the Company entered into a subsidiary treaty, the population again increased, merchants flocked to it from all quarters, and its manufactures revived through the confidence inspired by the protection of the British government.

The town contains a large proportion of good-sized houses. The whole of the buildings are composed of the red earth of the country, and covered with tiles. Adjoining the town are extensive gardens, made by Hyder and Tippoo. These gardens are divided into square plots separated by walks, the sides of which are ornamented by the cypress trees. The plots are mostly filled with herbs and fruit trees, a separate square being allotted for each kind of plant. Thus, one plot is filled with rose-trees, another with pomegranates, and so forth. In some parts of the garden laid out under the orders of Tippoo, the surface is nearly covered with masonry, leaving only spaces through which the trees are allowed to grow. The cypress and vine grow luxuriantly in the climate of Bangalore, and the apple and peach both bear fruit. It is thought that the olive, and other plants of the Levant, would succeed in this spot, which, from its elevated position (nearly 3000 feet above the level of the sea), enjoys a temperate climate. For the same reason, invalids are accustomed to repair to Bangalore from other parts of the south of Hindustan, and, except in very severe cases, derive almost certain benefit from the change.

The inhabitants are mostly Hindus; but many Mohammedans, some members of whose families were attached to the service of the late sultans, continue to reside in the town, where they are one after another betaking themselves to commercial pursuits.

From its central position, Bangalore has routes passing through it in every direction, which circumstance gives to it considerable importance, both politically and as a trading station. Its merchants carry on commercial dealings with every part of the south of India. The principal articles which enter into this commerce are salt, sugar, betel-nut, spices, metals, dyeing-stuffs, raw silk, and cotton wool. Many of these articles are imported for the use of its manufacturers. The tissues woven here, both of silk and cotton, are almost entirely retained for the use of the district. The silk goods are mostly of a rich texture. The spinning of cotton is all performed by women, who carry their yarn to a weekly market for sale to the weavers.

The population of the city was estimated, in 1805, to amount to 60,000 souls. The travelling distances are, from Bangalore to Seringapatam, 74 miles; to Madras, 215 miles; to Hyderabad, 352; and to Poonah, 521 miles.

(Hamilton's *Journey through Mysore, Canara, and Malabar;* Rennell's *Memoir of a Map of Hindustan;* Mill's *History of British India; Report of Committee of House of Commons, in* 1832, *on the Affairs of India.*)

BANG-KOK, the present capital of the kingdom of Siam, on the peninsula beyond the Ganges, is situated on both banks of the river Menam, about thirty miles from its mouth, near the 14th parallel, and somewhat more than ten minutes to the east of the 100th meridian.

It is a place of considerable extent, and consists properly of three parts, the floating town, the town itself, and the royal palace. The first presents the most curious view to Europeans; both banks of the river are lined by eight, ten, or more rows of floating houses, which occupy the whole length of the town, amounting to three or four miles. These houses are built of boards only, and are of a neat oblong form. Towards the river they are provided with covered platforms, on which numerous articles of merchandise are displayed, as fruit, rice, meat, &c., so that this portion of Bang-kok may be called a floating bazaar, in which all the various products of China and of the country are exposed for sale. The houses rest on bamboo-rafts, which at each end are fastened to long bamboos driven into the bottom of the river. The inhabitants are thus enabled to move from place to place as convenience may command. The houses themselves are, in general, very small, consisting of one floor, with a principal centre room, and one or two small ones; the centre is open in front for the display of their merchandise. The houses are from twenty to thirty feet in length, and about half that space in breadth. They are raised about a foot above the water, and the roof is thatched with palm-leaves. Every house is furnished with a small canoe, in which the occupants pay visits, and go from place to place to transact their business. Almost all the houses seem to be occupied by merchants and tradespeople, as shoemakers, tailors, &c. At all hours of the day boats are seen passing and repassing between the rows of houses and on the open part of the river, which is a quarter of a mile in width. These small boats are so light and sharp in their form that they ascend with ease against the stream. The form of the houses in this part of the town is chiefly Chinese, and by far the greatest part of them are occupied by that nation.

The land portion of the city extends on both sides of the river to a distance of three or four miles, but especially on the left bank. It is entirely built of wood, except the palaces of the king, the temples, and the houses of some of the ministers, which are constructed of bricks or with mud walls. The mildness of the climate, the cheapness of the materials used in building, and the little property which the natives possess, render them indifferent to the destructive ravages of fire. From the great length which the city occupies, it might be supposed to be a place of vast extent; but this is not the case. The houses rarely extend more than one or two hundred yards from the river, and much of the space is occupied by fruit-trees. The houses are built on posts driven into the earth and raised above the bank - a precaution rendered necessary by the daily tides, and the annual inundations to which the town is exposed. These houses are not disposed in regular streets, for in this country there are few or scarcely any roads or even pathways, the river and canals forming the common highways, not only for goods but for passengers of every description. A boat,

generally a small one, is attached to each house, whether floating or not, for the use of the family. The few streets that Bang-kok has are passable only on foot, and in dry weather. The houses themselves contain several small apartments, of which the Chinese always allot the central one for the reception of their household gods. The shops, forming one side of the house, being shut up at night, are converted into sleeping apartments.

The palace of the king is contiguous to the town, on the left bank of the river, but higher up the stream. It is situated upon an island from two to three miles in length, but of inconsiderable breadth, which is separated from the continent by a narrow arm of the river. The palace, and indeed almost the whole of the island, is surrounded by a wall, in some parts of considerable height, here and there furnished with indifferent-looking bastions, and provided with numerous gates. The king, several of his ministers, and the numerous persons attached to the court, reside within this space, most of them in wretched huts made of palm leaves. There is, in fact, but little distinction between this place and other parts of the town, except it be that fewer Chinese live here, and that the shops are of inferior quality. The greater part of the space included by the wall consists of waste ground, swamps, and fruit-gardens.

The town derives but little architectural ornament from the public buildings, if we except the temples and their numerous spires. The palaces are buildings of inconsiderable size, in the Chinese style, covered with a diminishing series of three or four tiled roofs, sometimes ornamented by a small spire more remarkable for singularity than for beauty. The greatest ornaments are the temples: they cover a large extent of ground, and are placed in the most elevated and best situations, surrounded by brick walls or bamboo hedges; their inclosure contains numerous rows of buildings disposed in straight lines. The temples consist of one spacious, and, in general, lofty hall, with numerous doors and windows. Both the exterior and interior are studded with a profusion of minute and singular ornaments of the most varied description. It is on the ends of the buildings, and not on the sides, that the greatest care has been bestowed in the disposition of the ornaments. A profusion of gilding, bits of looking-glass, Chinese basins of various colours, stuck into the plaster, are among the most common materials. The floor of the temple is elevated several feet above the ground, and generally boarded or paved, and covered with coarse mats. In the central temple, which has the form of a parallelogram, is a sitting figure of Buddha of gigantic proportions. An area incloses this central temple, and at a certain distance from it smaller temples are disposed in straight lines, filled likewise with gilded figures of Buddha, for the most part considerably larger than life. Of these statues the greater number are made of cast iron, others of brass, others of wood or clay, and all with studied uniformity. In a separate apartment the sacred library is preserved. Without the inclosure are the cells of the talapoins, or priests, which are wooden structures raised on pillars, and extending, in a regular range, along the whole face of the square. Crawfurd, in his *Journal of an Embassy to the Courts of Siam and Cochin China*, gives a minute description of the most extensive of these temples, the Prah-chet-tap-pon, or Temple of the People.

One or more spires would appear to be a necessary part of every Siamese temple. The great temple described by Crawfurd had twenty-one. The most remarkable are those called Prah-cha-di, or the Roof of the Prah, or Lord, which in Ceylon are named Dagoba. They are a solid building of masonry, without aperture or inlet of any sort, generally built in the neighbourhood of some temple; but they are not themselves a place or object of worship, and are always distinct from the temple itself. In their origin they would appear to have been sepulchral monuments, and destined to commemorate either the death of Buddha or his translation to heaven. The Prah-cha-di of the large temple has a light and handsome appearance. The lower part consists of a series of dodecahedral terraces, diminishing gradually to nearly one-half of the whole height, where they are succeeded by a handsome spire, fluted longitudinally, and ornamented with numerous circular mouldings. The minor ornaments are numerous, and towards the summit there is a globe of glass. The height of this singular monument is stated to be 162 feet.

Bang-kok is rather to be considered as a Chinese colony than as a Siamese town; for by far the greatest number of inhabitants are Chinese and their descendants. This is partly to be attributed to its being a sea-port situated on a large river in a low country, but still more to its origin, which is of modern date. When the antient capital of the empire was taken by the Burmese in 1760, and the royal family was nearly destroyed, a merchant of the name of Pia-tac, either himself a Chinese, or of Chinese extraction, put an end to the existing anarchy, and ascended the throne. He chose Bang-kok for his residence. Previous to Pia-tac's time it had been of little importance, and noted chiefly for the excellence of its fruits, which were sent in great abundance to Yuthia, or Judia, at that time the capital of Siam, and situated considerably higher up the river Menam. Pia-tac favoured his countrymen, who settled in great numbers in Bang-kok; and though Pia-tac was afterwards killed, and a Siamese dynasty followed on the throne, they maintained themselves at this place. Finlayson, in 1822, thought that their number exceeded three-fourths of the population; and a more modern account, which is said to be founded on a census, gives to this town a population of 401,300 inhabitants, of whom 310,000 are Chinese, and 50,000 more of Chinese extraction, while the Siamese amount only to 8000. Besides, there are 1000 Cochin Chinese, 2500 natives of Camboja, 5000 of Pegu, 16,000 of Laos, 2000 Birmans, 3000 Tavoyese, 3000 Malays, and 1000 Christians. The Christians are natives converted by the Roman Catholics, or the descendants of some Portuguese settled in these parts.

The settlement of the Chinese has been of great advantage to the empire, and to Bang-kok in particular, where they have established iron manufactories, in which the produce of the mines, which are also worked by them, is formed into utensils of different kinds, which are exported to the countries inhabited by the Malays. Besides this, the manufacture of tin vessels is very considerable, as well as the tanning of leather. The latter is not prepared for the purpose of making shoes, which are scarcely used, but for covering mattresses and for exportation to China. After tanning, the leather is dyed red with the bark of a species of mimosa. Deer-skins are chiefly used, which are procured in great abundance, and also those of the ox and buffalo. The other manufactures are of little importance.

Bang-kok is a place of considerable trade. The Menam river is deep up to the town, and even to the antient capital, Yuthia, to which the largest vessels might ascend, but for the bar at the mouth of the river, which has only six feet water upon it at low tides; and from February to September thirteen feet and a half, and the remainder of the year, *i. e.* in the seasons of the south-western monsoons and of the rains, fourteen feet, at high tides. Consequently only vessels of from 200 to 250 tons can enter the river. The most active commerce is carried on with the ports of the Chinese empire, especially with Shanghae and the island of Hainan; but the trade between Singapore and other places of the neighbourhood is rapidly increasing. The internal commerce with the extensive countries drained by the river Menam, which is navigable for boats to a great distance from the capital, is also very important. [See SIAM.] (Finlayson; Crawfurd; *Asiatic Journal.*)

BANGOR, a city and parish in the hundred of Uwch-Gwyrfai, in the county of Carnarvon, in North Wales. The city is situated at the base of a steep rock, in a narrow fertile vale, near the river Ogwen, and not far from the northern entrance of the Menai Strait. It consists of one narrow crooked street, about a mile in length, with several openings from the water-side. According to the Rev. J. Evans (*Beauties of England and Wales*, vol. xvii.) it derives its name from *ban*, superior, and *cor*, a society, which means the chief choir. It afterwards received the additional appellation of *vawr*, great, to distinguish it from a small village of the same name in the county of Flint. The place is one of very great antiquity. Leland, following the authority of the Chronicle of John Harding, says that Condage, a British prince, here erected a temple and dedicated it to Minerva. The first authentic records, however, respecting Bangor relate to the sixth century. In 525 Deiniol, or, according to Pennant, Daniel, here founded a college. The building was dedicated to the founder, whose name the present rectory still bears. What the original extent of the college was cannot now be ascertained. The college was raised about the year 550 to the dignity of a bishopric, and the founder was appointed bishop. The present jurisdiction of the bishopric embraces the whole of Anglesea, with the

whole of Carnarvonshire, except four parishes; fourteen parishes in Denbighshire, seven in Montgomeryshire, and a part of Merionethshire. It has three archdeaconries—Anglesea, Bangor, and Merioneth. The two former are held with the bishopric. Merioneth is the only archdeaconry in which officialties occur: this archdeaconry only includes fourteen parishes, and the archdeacon appears to have no further powers than 'to visit and receive the annual procurations.' (See Willis's *Survey of the Cathedral Church of Bangor.*) In the twenty-sixth year of Henry VIII. the revenues of the See of Bangor were valued at 151*l.* 3*s.* per annum, or 131*l.* 16*s.* 4*d.* clear; but it is generally supposed that they are now worth at least 1200*l.* a year. The officers belonging to the cathedral are a bishop, a dean, three archdeacons, a treasurer, two endowed prebendaries, a precentor, a chancellor, and three canons, with several others of inferior rank.

The cathedral founded by St. Deiniol was destroyed by the Saxons in 1071; but was rebuilt from funds collected by a synod held in 1102 at Westminster, for reforming the church. King John, in 1212, took the then bishop prisoner while officiating at the altar, but released him on receiving a handsome ransom. It suffered severely in the wars which took place between the Welsh and Henry III. in 1247, and was again completely destroyed by fire in 1402, during the war which followed the revolt of Owen Glendwr. For about a hundred years afterwards, the insurgents of Anglesea kept possession of the bishopric. Between 1496 and 1500 the choir was rebuilt by Bishop Dean at his own expense. In 1532 the tower and nave were erected by Bishop Skeffington, which fact is commemorated by an inscription over the west door. The dimensions of the cathedral, as thus rebuilt a second time, are given by Mr. Rickman (*Essays on Gothic Architecture*) as follows:—

	Feet.
Length of the cathedral from east to west	214
Length of the tower at the west end	19
Length of the nave or body	141
Length of the choir, which extends entirely to the east end and begins beyond the transepts	63
Length of the cross aisles from north to south	96
Breadth of the body and side aisles	60
Height of the body to the top of the roof	34
Height of the tower	60
Square of the tower	24

Bishop Bulkeley, instead of following the example of his two predecessors, and improving the cathedral, alienated, in 1547, much of its property. He applied to his own use a considerable part of the lands which belonged to the see, and even sold the bells of the cathedral. For this sacrilege he was, according to Godwin, struck blind soon after committing it. (See Godwin, *De Presulibus.*) The statement of the blindness is, however, generally discredited, as there are receipts extant which were written immediately before Bulkeley's death, which happened on March 14, 1552. The cathedral is at present in a state of very good repair, for which it is indebted to the late Dr. Warren, bishop of the diocese. This prelate, early in the present century, expended a large sum in repairing and beautifying the cathedral. He also built the harbour, which has proved of so much benefit to the city. The remains of several Welsh princes, with those of a number of bishops and other distinguished ecclesiastics, lie within this cathedral. The tomb of Prince Owen Gryffydd is still in a perfect state beneath an arched recess.

The bishop, as lord of the manor, has the immediate jurisdiction of the city. The living is not in charge, but is a vicarage, the patronage of which is vested in the bishop. The bishopric is one of the poorest in the country, but the bishops are allowed to hold some good benefices *in commendam.*

The bishop's palace stands in a low situation below the cathedral. In Pennant's time it was but a very indifferent residence; early in the present century, however, it was greatly improved by Bishop Warren.

Bangor has a free grammar school, which stands at a small distance from the city. It is a handsome brick building, and was erected and endowed by Dr. Jeffry Glynn, brother of Bishop Glynn, about the year 1557. The endowment originally was only equal to about 60*l.* per annum to the master, and 35*l.* to the usher; but owing to the improvement which has since taken place in land, and the number of boarders which the master usually has, the situation is now worth from 350*l.* to 400*l.* per annum. There are three national schools in the parish of Bangor, and an infant school in the town.

Bangor has also an hospital or almshouse, which was founded early in the seventeenth century by Dr. Rowland, one of the bishops of the place. By that prelate's will, dated July 1, 1616, he bequeathed an estate in lands for the erection and endowment of an almshouse, 'to accommodate six poor old impotent single men, each of whom shall receive two shillings per week, and annually six yards of frieze for their clothing.'

In the year 1809 a public dispensary was established by voluntary subscription, called 'The Carnarvonshire and Anglesea Loyal Dispensary.' According to the statement of the committee appointed to superintend the erection of the building, the dispensary was determined on by the gentlemen assembled in Bangor to celebrate the fiftieth anniversary of the reign of George III. Their object was to avail themselves of the occasion to give a decided proof of loyalty to the king, and humanity to their most destitute fellow-subjects. The subscription list was soon filled up, and a small neat building was erected close to the London road. The dispensary supplies the poor with medicine and medical advice gratis.

The trade of the city consists almost entirely in slates, which are taken to Port Penrhyn from the quarries of Llandegai, a place about eight miles distant, by means of a railway made for the purpose. These quarries give constant employment to upwards of a thousand workmen, and they produce a large revenue to the proprietor. Near Garth Ferry, in the Menai Strait, there is a fishery of some extent.

The city has three excellent inns, a market-place, and assembly-rooms. The large inn called the Penrhyn Arms, near the city, was built by Mr. D. Pennant, the present proprietor of Penrhyn Castle, near Bangor. The Independents, the Wesleyan Methodists, and Baptists, have severally places of worship in it. The appearance of the town altogether is neat. It was a place of great importance in antient times, and is supposed to have occupied the whole of the rising ground between the present city and Bangor Ferry, a distance of two miles. Of late the place has been rapidly increasing, both in population and importance, and it is now one of the contributory boroughs in the Carnarvon district for returning a member to parliament, having been added to the other five by the late Reform Act. Its vicinity to the sea, and the beauty of the situation and surrounding scenery, have brought it into some note as a fashionable bathing-place; and since the erection of the Menai Suspension Bridge many thousand persons have annually visited Bangor. A number of houses have recently been built for the visiters in the summer season, and many tasteful villas have sprung up in the neighbourhood of the place. The rides and walks around the city are numerous and pleasant. The great road from Dublin to London passes through Bangor. It has four annual fairs, on the 5th of April, the 25th of June, the 16th of September, and the 28th of October. It has also a weekly market, on Friday, which is remarkable for the abundance and cheapness of its provisions: indeed, it is generally allowed to be one of the cheapest towns in the kingdom. (See Warner's *Walk through Wales.*) Bangor is distinguished as the place in which arose the well-known Bangorian Controversy, which caused so much excitement in the early part of the last century. That memorable controversy had its origin in the circumstance of Dr. Hoadly, then bishop of Bangor, advancing some notions contrary to those entertained by the Church respecting the spirituality of Christ's kingdom. [See HOADLY.] Eastward of the city about three-quarters of a mile are the remains of a castle, which was erected by Hugh, Earl of Chester, in the reign of William II.

Among the interesting objects which are seen from Bangor is Snowdon. The parish of Bangor is five miles in length and four in breadth. The city is 198 miles north-west of London, and nine miles north-east of Carnarvon. By the road it is 236 miles from London. The population in 1831 was 4751, of whom 1983 were males, and 2768 females. (See *History of Wales*, edition of 1697; Willis's *Survey of the Cathedral Church of Bangor*; Carlisle's *Dictionary of Wales*; Pennant's *Tour through Wales*; Camden's *Britannia*, by Gough; *Beauties of England and Wales*, by the Rev. J. Evans; Godwin, *De Presulibus*; Warner's *Walk through Wales*; Rickman's *Essays on Gothic Architecture*; *Population Reports.*)

BANGOR, or **BENCHOR**, signifying the White Choir, a borough and sea-port town in the county of Down in Ireland. It is partly in the barony of Ardes and partly in that of Castlereagh, and situated on the bay of Carrickfergus. It is a place of great antiquity, though the date of its foundation is not known. It was at one time famous for its abbey of canons, which was founded by St. Comgall, a person of noble family, in the middle of the sixth century. It is said that there were 3000 resident monks in it at the time of its greatest prosperity. Cormac, King of Leinster, is reported to have closed his life in the abbey, in the year 567. It was restored in 1120 by St. Malachy, having previously gone to ruins; some remains of the abbey still exist. The town was originally governed by a provost and twelve burgesses, who, before the union between Great Britain and Ireland, had the right of returning two members to the Irish parliament. Bangor has lately had a pier erected, with a view to the encouragement of the deep-sea fishery, for which the place is said to be well adapted. In the parish, which is called by the same name, there is a lead-mine of some value, which is worked by the Mining Company of Ireland. Lord Bangor, the proprietor of the place, supports a school in the borough, out of his own private purse, in which fifty-six girls are educated; and Lady Dufferin maintains a school, in the parish, which gives a good education to forty girls. Bangor is 75 miles north-east of Dublin, or 114 miles by the road. It has three annual fairs, one on January 20th, another on May 1st, and the third on November 22nd. The population of the town is 1520, and of the parish 9355.

BANGOR-ISCOED, or **BANGOR-IS-Y-COED**, which means Bangor-below-the-Wood, a village and parish, partly in the county of Flint and partly in the county of Denbigh in North Wales. It is beautifully situated on the eastern banks of the Dee, in an open and fertile country. Bangor was once the seat of one of the largest monasteries in Britain; and according to Bede, the ecclesiastical historian, this monastery, which stood for many centuries, was the first erected in this island. At one time it contained 2400 monks, who, dividing themselves into seven bands or companies, passed their time alternately in prayer and labour. They were not only able by their own industry to support themselves, but to give large supplies of food and clothing to the poor of the neighbourhood. Many thousands of religious persons were sent out from this monastery to all parts of the country, among whom was the celebrated Pelagius. In the days of St. Augustine the monks of this monastery were distinguished for their zealous opposition to the usurpations of the church of Rome; and they deputed seven bishops to meet that distinguished missionary from the pope, for the purpose of remonstrating against the undue power which his holiness was beginning to assume over them and the churches of Britain. On finding St. Augustine both obstinate and insolent, they abruptly left him, and for some centuries afterwards the monks of Bangor and their successors maintained a purer system of doctrine and discipline than existed in any other part of Europe. If Bede may be credited, St. Augustine was so enraged at the noble and resolute stand which the bishops made against the encroachments on their rights by the pope, as to instigate Ethelfrid to commit the massacre of the monks which followed soon after. The place is full of the traces of this antient monastery: and many curious fragments of architecture and other antiquities are from time to time dug up in the neighbourhood. The population of the village is about 1000: it is 160 miles N.W. of London.

(Camden's *Britannia*; Pennant's *Tour*; Carlisle's *Topographical Dictionary of Wales*; *several volumes of Travels through Wales*; *Population Reports* for 1831, &c.)

BANGOR, a post-town in the United States, and capital of the county of Penobscot in the state of Maine, at the distance of 620 miles N.E. of Washington. Its situation is pleasant, and very advantageous in a commercial point of view, being on the western bank of the Penobscot river, which is navigable to the town for vessels of 300 or 400 tons burden. It is a small but increasing town, and contains a theological seminary, a court-house, and other public buildings. The theological seminary was incorporated in 1814, for the purpose of preparing young men of the Congregational denomination for the ministry. The number which had been educated since the foundation was 62 in the year 1833, when there were two professors and six students. It has a library of 2000 volumes. The population of the town was 1221 in 1820, 2002 in 1825, and 2868 in 1830.

BANIA'NS. The word Banian is a corruption of the Sanscrit *banij* or *banik*, 'a merchant, a trader,' and is the term by which Hindoos visiting foreign countries for mercantile purposes are generally designated. We find Hindoo merchants noticed at an early period during the middle ages in several of the most distinguished trading towns of the East. Marco Polo mentions Hindoos among the foreign traders who visited the fair of Tabriz; and in speaking of Aden he describes it as 'an excellent port, frequented by ships arriving from India with spices and drugs.' He was acquainted with the mode in which these commodities were transported from Aden to Lower Egypt, viz., first on Arabian vessels up the Red Sea, to an Egyptian sea-port (Kosseir); thence, by camels, to a place on the Nile (Kus; afterwards to Kene), and from thence, on boats, down the river to Cairo, and finally to Alexandria. Indian merchants appear also to have settled, during the middle ages, on the eastern coast of Africa: Vasco de Gama, on his first voyage, met with several Indian trading-vessels in the port of Melinde (De Barros, *Asia*, Dec. 1., liv. iv., c. 5); and it is not improbable that the information which they afforded may have been of material utility to the early Portuguese navigators in discovering the passage by sea to India. In some of the principal towns of Persia and Arabia, the Banians appear to have sometimes formed a considerable class in society, and to have possessed much political influence. It is said that the Portuguese were driven from their possessions at Muscat through the treachery of a Banian, who thus resented an insult offered to his family. (Niebuhr, *Beschreibung von Arabien*, p. 297.) In 1765 there were no more than twenty Hindoo merchants settled at Shiraz; but a new caravanserai was at that time built on purpose to be appropriated to their accommodation, in order to induce them to visit Shiraz in greater numbers. Some Hindus are settled as far to the north and west as Astrakhan. [See ASTRAKHAN.] (Niebuhr's *Reisebeschreibung*, &c., vol. ii., p. 270.) The Banians do not at the present day form a distinct class or caste in India, nor are they accounted as such in the antient Hindu law-codes. Some travellers, *e. g.* Tavernier (*Voyages des Indes*, liv. iii. c. 3), have used the name Banian as synonymous with Vaisya, the designation of the whole caste of merchants, husbandmen, and mechanics; but this seems unsupported by Oriental authority.

BA'NIAS (Πανεάς, Stephan. Byzant.), a town of Palestine, situated at the foot of a branch of Anti-Libanus, now called Jebel Heish, the Mount Hermon of Scripture, which was the northern boundary of the Children of Israel, and the Paneium of the Romans. Banias is supposed to be on or near the site of the Dan of the Jews. Its name was changed to Cæsarea Philippi, by Philip the Tetrarch, son of Herod; the former part of the name was in honour of the Emperor Tiberius, to which Philip added his own by way of distinguishing it from the Cæsarea on the sea-coast.

The modern village contains only about 150 houses, mostly inhabited by Turks, but there are also Greeks, Druzes, and Arabs; it is a dependency on the town of Hasbeya, about twenty miles to the northward, whose Emir nominates the Sheikh. It stands on a triangular-shaped piece of ground enclosed by the river of Banias and the Jordan, and backed by the mountains, at the foot of which, to the N.E. of the village, the river of Banias takes its rise in a spacious cavern beneath a precipitous rock. This precipice has several niches, in one of which the base of a statue still remains; and each of them had an inscription in Greek characters which are now so nearly effaced as to be unintelligible. The largest of these is within the cavern over the source of the river, and probably contained a statue of Pan, as the others may have contained similar dedications to that or other deities. The cavern and Paneium (Πανεῖον), or sanctuary of Pan, are described by Josephus (*Jewish War*, iii., 10, 7), from whom it appears that the fountain or spring was considered as the source of the Jordan, and the outlet of the small lake Phiala. He says that Philip the Tetrarch made the experiment, by throwing chaff into the lake, which came out at the springs of Banias. Around this spring are great quantities of large hewn stones, which probably belonged to the Temple of Augustus, built by Herod. Philip also added greatly to the town: indeed Josephus (*Jewish War*, ii., 9, 1) calls him the founder of Cæsarea in Baneas.

Although these springs are by far the most copious, they are not the most distant from the Dead Sea, and cannot be considered as the true source of the Jordan, which may be

placed at about four miles N.E. of Banias, near the foot of a hill called Tel-el-Kadi, where there are two springs, the larger of which forms at once a river from twelve to fifteen yards broad, which rushes rapidly over a stony bed, and passing south of Banias, forms a junction a little below that village with the river of Banias. There are no ruins about these springs, but near them is a small village called Enkeil. This stream is still called Dhan; and it is said that the river of Banias was formerly called Djour, whence the name Jordan. But the Hebrew form of the word is Yardên, not Jordan. [See JORDAN.]

The river of Banias flows on the north side of the village, where there is a well-built bridge, and some remains of the antient town; but the principal part of the old town appears to have stood on the opposite side of the river, where the ruins extend nearly a mile from the bridge. No walls remain, but great quantities of stone and architectural fragments are scattered about; there are also some granite columns entire. On the south side of the village are the ruins of a very strong castle, surrounded by a ditch and wall; several of the towers are still standing, and there are five or six granite columns built in the doorway. From an Arabic inscription, it appears to have been built about the middle of the 13th century, during the crusades. About four miles to the eastward of the village, on an eminence, are the ruins of another castle, once evidently a strong fortress, and apparently coeval with that in the village. It is surrounded by a wall ten feet thick, and flanked with numerous round towers built with equal blocks of stone about two feet square, and has only one gate on the south side. This castle, which is called the Castle of Banias, contains the ruins of many private habitations; and at both western corners there is a succession of strongly-built low apartments like cells, dark, vaulted, and provided with loop-holes for musquetry; there are also four wells in this castle full of water. The view from this spot is magnificent, commanding the beautiful and richly-wooded plain of the Houle, with a part of its lake in front, and an extensive range of barren mountains (the branches of Anti-Libanus) to the northward. The country is well-cultivated, and abounds in game. Traces of an antient paved way may still be seen; probably the Roman road to Damascus.

Banias is about 23 miles E. by N. of Tyre.

(Burckhardt's *Travels in Syria*; Pococke's *Description of the East*; Seetzen's *Travels*; Mangles and Irby; Pliny, v, 15.)

BANISHMENT, expulsion from any country or place by the judgment of some court or other competent authority.

The term has its root in the word *ban*, a word of frequent use in the middle ages, having the various significations of a public edict or interdict, a proclamation, a jurisdiction and the district within it, and a judicial punishment. Hence a person excluded from any territory by public authority was said to be banished—*bannitus, in bannum missus*. (See Ducange, *voc. Bannire, Bannum*; Pasquier, *Recherches*, pp. 127, 732.)

As a punishment for crimes, compulsory banishment is unknown to the antient unwritten law of England, although voluntary exile, in order to escape other punishment, was sometimes permitted. [See ABJURATION.] The crown has always exercised, in certain emergencies, the prerogative of restraining a subject from leaving the realm; but it is a known maxim of the common law, that no subject, however criminal, shall be sent out of it without his own consent, or by authority of parliament. It is accordingly declared by the Great Charter, that 'no freeman shall be exiled unless by the judgment of his peers or the law of the land.'

There are, however, not wanting instances in our history of an irregular exercise of the power of banishing an obnoxious subject by the mere authority of the crown; and in the case of parliamentary impeachment for a misdemeanor, perpetual exile has been made part of the sentence of the House of Lords with the assent of the king. (See Sir Giles Mompesson's case, in the reign of James I., reported by Rushworth and Selden, and cited in Comyn's *Digest*, title 'Parliament,' l. 44.) It may be noticed also, that aliens and Jews (formerly regarded as aliens) have, in many instances, been banished by royal proclamation. [See ALIEN.]

Banishment is said to have been first introduced as a punishment in the ordinary courts by a statute in the thirty-ninth year of the reign of Elizabeth, by which it was enacted, that 'such rogues as were dangerous to the inferior people should be banished the realm;' but an instance occurs in an early statute of uncertain date (usually printed immediately after one of the eighteenth year of Edward II.), by which butchers who sell unsound meat are compelled to abjure the village or town in which the offence was committed. At a much later period the punishment now called transportation was sanctioned by the legislature, and has in other cases been made the condition on which the crown has consented to pardon a capital offence. In the latter case, transportation to Port Jackson may be truly described in the language of Cicero, 'Exilium, non supplicium, sed perfugium portusque supplicii.' [See TRANSPORTATION.]

Banishment, in some form, has been prevalent in the criminal law of most nations, antient as well as modern. Among the Greeks two kinds were in use:—1. Perpetual exile (φυγή), attended with confiscation of property, and employed as a punishment for crimes; 2. Ostracism, as it was called at Athens, or Petalism, the term in use at Syracuse, a temporary expulsion, unaccompanied by loss of property, and inflicted sometimes upon persons whose influence, arising either from great wealth or eminent merit, made them the objects of popular suspicion or jealousy.

Among the Romans there were three forms of banishment:—1. *Relegation*, which was the mildest form, obliged the offender to reside in some assigned place abroad, either for a fixed time or for life, but subjected him to no other civil disability or loss. Of this nature was the banishment to which we owe the plaintive poetry of Ovid. 2. *Exile*, or the 'interdiction of fire and water,' was a severer penalty. It prescribed no particular place of abode, nor did it directly or expressly sentence the culprit to expatriation; but by depriving him of every possible means of living in his own country, it indirectly compelled him to seek another, and eventually stripped him of the rights of a Roman citizen. 3. The last kind of banishment was *Deportation*. It was introduced in place of the interdiction, and by it the criminal incurred all the civil forfeitures of exile, and was usually conveyed to some remote island (see Tacit. *Hist.* i. 2), in which his life was rendered painful by fetters, by forced labour, or by the natural effects of the climate. Deportation therefore differed little from the modern punishment of transportation, except as far as regards the healthiness of the spot selected; and it was further attended by the same consequences of civil death during the continuance of the term of punishment. Hence it was that the day of his return from exile was called his second birth-day. (Heinecc., *Antiq. Rom. Syntagma*, lib. i. tit. 16; *Digesta*, lib. xlviii. tit. 22.)

BANISTER is a corrupt term for Baluster [see BALUSTER]. It is used to express the wooden railings inclosing the stairs of a house.

BANJARMASSIN, a district and town on the south coast of the island of Borneo, situated in 3° N. lat., and 114° 55′ E. long. The town is built on the banks of the river Banjarmassin, at the mouth of which is a bar which prevents the entrance of all vessels except small boats, and even these can only pass in or out at certain states of the tide. Beyond this bar it has been ascertained that the river is navigable for at least fifty miles from the sea. It does not appear that any European has ever proceeded higher up the stream. Vessels trading to the town anchor in the harbour of Tombanjou or Tomborneo, near the mouth of the river.

In 1614 the East India Company opened a trade with this place, which does not appear to have been persevered in at that time. In 1703, after some previous negotiations, the Company sent Mr. Allen Catchpole, with several other of their servants, to settle a factory; but in 1707 the English were driven away by the natives. At this time the place appears to have been subject to the king of Cochin China. The next trading with Banjarmassin on the part of Europeans was in the year 1736, when the English East India Company sent a ship with presents, and asked permission to purchase a cargo of pepper. The facilities given by the native authorities on this occasion do not appear to have been great, for it was not until 1738 that the ship was enabled to leave the island with a cargo, and the prices demanded for the pepper were so high as to afford no inducement for a speedy repetition of the adventure. An attempt at commercial intercourse was again made in 1746, when the sultan caused the captain of the ship to be kept for some time a prisoner, and took possession of his vessel

as a guard-ship. In the following year the Dutch East India Company entered into a contract with the sultan for the monopoly of pepper in his dominions, and from that time until the conquest of Java, in 1811, the English had no intercourse with the place.

The Dutch settlement at Banjarmassin was maintained from 1747 to 1810, but does not appear at any time during that period to have been in a flourishing state. In the last-mentioned year it was abandoned by Maréchal Daendels in favour of the Malay sultan, upon payment by him of 50,000 Spanish dollars to the Dutch government.

In 1811 Banjarmassin was considered as a dependency of Java, and a British garrison was sent there, together with a resident on the part of the East India Company. The settlement thus made was retained by the Company until 1817, when it was ceded to the Dutch, who, it is understood, continue to the present time on friendly terms with the sultan.

Many Chinese reside constantly at Banjarmassin, whence they carry on a considerable trade with China. The imports of the town are principally of piece goods, cutlery, opium, gunpowder, and fire-arms; the produce exported in return consists of pepper, gold dust, wax, camphor, spices, rattans, beche-de-mer, and edible birds'-nests. Some steel of very superior quality is also procured at this place.

(Stavorinus's *Voyages*; Raffles's *Java*; *Report of Select Committee of the House of Lords on the Foreign Trade of the Kingdom*, 1820 and 1821.)

BANK, in barbarous Latin *bancus*, literally signifies a bench or high seat; but as a legal term it denotes a seat of judgment, or tribunal for the administration of justice. In a rude state of society, justice is usually administered in the open air, and the judges are placed in an elevated situation both for convenience and dignity. Thus it appears that the antient Britons were accustomed to construct mounds or benches of turf for the accommodation of their superior judges. (See Spelman, *ad verbum*.) It is clear, however, that in very early times in this country there was a distinction between those superior judicial officers who, for the sake of eminence, sat upon a bench or tribunal, and the judges of inferior courts, such as hundred courts and courts baron, the latter being analogous to the *judices pedanei* of the Roman law—a kind of inferior judges, whose duties are not very clearly defined, but who are expressly stated to have derived their denomination *a pedibus, quod pede plano judicarent non pro tribunali*. (See Calvin's *Lexicon Juridicum*, ad vocem *Pedanei*.)

In consequence of this distinction, the king's judges, or those who were immediately appointed by the crown to administer justice in the superior courts of common law, were in process of time called justices of the bench, or, as they are always styled in records, *justiciarii de banco*. This term, in former times, denoted the judges of a peculiar court held at Westminster, which is mentioned in records of the reign of Richard I., and must therefore have made its appearance, under the name of *bancum* or bench, not long after the Conquest. This court no doubt derived its name from its stationary character, being permanently held at Westminster, whereas the *curia* or *aula regis* followed the person of the king. (See Maddox's *History of the Exchequer*, p. 539.) This institution was the origin of the modern Court of Common Pleas, and the judges of that court retain the technical title of 'Justices of the Bench at Westminster' to the present day; whereas the formal title of the King's Bench judges is 'the justices assigned to hold pleas in the court of the king before the king himself.' For many centuries, however, the latter court has been popularly called the Court of King's Bench, and the judges of both these courts have been described in acts of parliament and records in general terms as 'the judges of either bench' (*judices utriusque banci*); but the barons of the Court of Exchequer have never been denominated judges of the bench, though, in popular language, a new baron, on his creation, is, like the other judges, said to be raised to the bench.

The phrase of sitting *in banco*, or in bank, merely denotes the sessions during the law terms, when the judges of each court sit together upon their several benches. In this sense it is used by Glanville, who wrote in the reign of Henry II., and who enumerates certain acts to be done by justices *in banco sedentibus*. *Days in bank* are days particularly appointed by the courts, or imposed upon them by various statutes, when process must be returned, or when parties served with writs are to make their appearance in full court. The day in bank is so called in opposition to the day at Nisi Prius, when a trial by a jury takes place according to the provisions of the statute of Nisi Prius. [See ASSIZE.]

BANK—BANKER—BANKING. These three objects are so intimately connected, that it would hardly be possible to give any clear description of them separately. By the term 'bank' is understood the establishment for carrying on the business to be described; the 'banker' is the person by whom the business is conducted; and the expression 'banking' is commonly used to denote the system upon which that business is managed, and the principles by which it should be governed or regulated.

In all populous and civilized communities, and especially in such as are to any great extent commercial, the business of banking is one in the proper understanding and right conducting of which the public generally is, beyond all other businesses, interested. Errors, however grave, committed by those who are engaged in the business of importing and exporting, or in manufacturing and dealing in goods, are for the most part mischievous only to the parties immediately concerned, and to those with whom they may individually hold commercial relations. But errors with regard to the principles or practice which should govern the trade of banking, extend their evil consequences to a far wider field, and in such cases the mischief cannot fail to be felt in some degree by almost every member of the community.

This fact appears so obvious upon the slightest reflection, that it must afford matter for surprise when we consider in how trifling a degree the better informed among the mercantile body, and even the greater part of those who are actually engaged in the business, have attempted to gain any knowledge of the true theory of banking: while the remaining portions of the community, as well those whose station in life renders attention to matters of business unnecessary, as those whose humble rank affords them no opportunity of acquiring a practical knowledge of extensive money transactions, with but very few exceptions appear to have considered the question as one with which they have no concern. It is foreign to our purpose to enter at large upon the discussion of any of those controverted points connected with the theory of banking, which a few years since were agitated in a manner which demonstrated how little the subject must have previously been understood, since practical, and, in other respects, well-informed men differed most essentially upon some of the most fundamental principles of that theory. In the few remarks of a general nature that may be here offered, our design will principally be to awaken attention to the subject, while by bringing forward some of the more prominent facts and circumstances as they have arisen and exist, we may be able to afford that degree of knowledge which will form the best and most practical groundwork for speculative investigations, and at the same time prove a preservative against the mischiefs which are likely to result from plausible fallacies.

We propose to consider the subject of banks and banking under the following heads:—

I. A brief historical sketch of the origin and progress of banking.
II. An explanation of the objects and general principles of banking, including a description of the various kinds of banks.
III. The history and constitution of the Bank of England.
IV. The art of banking, as carried on by private establishments and joint-stock associations in London and other parts of England, and in Ireland.
V. A description of the Scotch system of banking.
VI. Some notices of the banking system followed in the United States of America.

I. *Historical sketch of the origin and progress of Banking.*—The vague notices which are found in antient history, both sacred and profane, connected with dealings in money as a separate business, appear to warrant the belief that banking, in the sense wherein it is now understood, was but little known or practised in very remote periods. In times when nations were chiefly engaged in pastoral or agricultural pursuits, the trade of banking would hardly suggest itself to anybody as a profitable calling; and until, in the progress of a community towards civilisation, the extent of its commercial dealings had become very considerable, none

would be led to give their attention to the occupation of facilitating the money operations of the rest of the mercantile community. At first this office would doubtless be undertaken for others by the more considerable traders, and a further period would elapse before it would become a separate business.

It is probable that the necessity for some such arrangement would be first experienced in consequence of the different weights and degrees of fineness of the coined monies and bullion which would pass in the course of business between merchants of different nations. The principal occupation of the money changers mentioned by St. Matthew, by whom the sacredness of the Jewish Temple was invaded, was doubtless that of purchasing the coins of one country, and paying for them in those of their own or of any other people, according to the wants and convenience of their customers. It is likewise probable that they exercised other functions proper to the character of bankers, by taking in and lending out money, for which they either allowed or charged interest (Matthew xxv. 27).

The bankers of Athens appear to have fulfilled most of the functions belonging to the trade. (See *Demosthenes against Aphobus, Or.* 1.) They received money in deposit at one rate of interest, and lent it out at another; they advanced money upon the security of goods, and lent sums in one place to be repaid in another. They likewise dealt in foreign coins, and appear to have occasionally advanced money to the state for public purposes. Some of them, as we are told, acquired great wealth. In the treatise written by Xenophon on the revenues of Attica, we find a remarkable project for the formation of a bank, the subscription to which should be open to all the Athenians. The object of this project was to raise a great revenue, by taking advantage of the high rate of interest then currently paid by commercial adventurers, and which sometimes reached the exorbitant rate of twenty-five per cent. The grandeur of this scheme of Xenophon, which was intended to combine the whole free population of Athens into one great banking company, could hardly have been in agreement with the condition of a society in which the element of mutual confidence was but scantily infused. To afford a better chance of success to his proposal, Xenophon endeavoured to engage the public spirit of his countrymen in its favour, by suggesting that a part of the great gains which it could not fail to produce might be employed 'to improve the port of Athens, to form wharfs and docks, to erect halls, exchanges, warehouses, market-places, and inns, for all which tolls and rents should be paid, and to build ships to be let to merchants.' (Mitford's *History of Greece*, vol. iv. p. 22.)

The successive conquests of the Romans having caused a great mass of wealth to be accumulated in the imperial city, a necessity arose for the establishment of bankers. These traders were called indifferently by the name of *argentarii, mensarii, numularii,* and their establishments received the name of *tabernæ argentariæ*, or *mensæ numulariæ.* The Roman government was accustomed to appoint bankers for the receipt of taxes, who in so far acted only as public officers and were of no further utility to the community. Other private bankers conducted money business in Rome in a manner very similar to that now in use in Europe. They were the depositaries of the revenues of the wealthy, who through them made their payments by written orders. They also took in money on interest from some, and lent it at higher rates to others; but this banking trade does not appear to have been held in much repute in Rome, where a great prejudice existed against the practice of making a profit from the loan of money. In the reign of Augustus, a fund was created from the property of criminals which became forfeited to the state, and out of this fund sums were lent to such citizens as applied, and who could give satisfactory security for the repayment. This system was continued, with some modifications, in the succeeding reigns.

During the middle ages, in which commerce and the arts can hardly be said to have existed, there could be no field open for the banking business; but on the revival of commerce in the twelfth century, and when the cities of Italy engrossed nearly all the trade of Europe, the necessity again arose for the employment of bankers. These at first carried on their business in the public market-places, or exchanges, where their dealings were conducted on benches, whence the origin of the word bank, from *banco*, the Italian word for a bench. The successful manufacturing efforts of the Florentines brought them into commercial dealings with different countries in Europe, and thence arose the establishment of banks. In a short time Florence became the centre of the money transactions of every commercial country in Europe, and her merchants and bankers accumulated great wealth.

The banks here mentioned were private establishments. The earliest public bank established in modern Europe was that of Venice, which was founded in 1157. This bank was in fact an incorporation of public creditors, to whom privileges were given by the state as some compensation for the withholding of their funds. The public debt was made transferable in the books of the bank, in the same manner as the national debt of England is transferable at the present time; it was made obligatory upon the merchants to make their contracts and draw their bills in bank-money, and not in the current money of the city. [For an explanation of this difference, see Agio.] The effect of this regulation was, that all payments of that nature were made by a transfer from one name to another in the bank-accounts, of the funds deposited in its coffers. This establishment, which was always essentially a bank of deposit and not of issue,—the difference between which functions will be described further on—existed for more than six centuries, or until the subversion of the republic in 1797. Its money at all times bore a premium, or *agio*, over the current money of the city.

About the year 1350, the cloth-merchants of Barcelona, then a wealthy body, added the business of banking to their other commercial pursuits; being authorized so to do by an ordinance of the king of Aragon, which contained the important stipulation, that they should be restricted from acting as bankers until they should have given sufficient security for the liquidation of their engagements. Fifty years afterwards, a bank was opened by the functionaries of the city, who declared their public funds answerable for the safety of money lodged in their bank, which was a bank of deposit and circulation.

The Bank of Genoa was planned and partially organised in 1345; but was not fully established and brought into action until 1407, when the numerous loans which the republic had contracted with its citizens were consolidated, and formed the nominal capital stock of the bank. This bank received the name of the Chamber of Saint George, and its management was intrusted to eight directors chosen by the proprietors of the stock. As a security for its capital in the hands of the republic, the bank received in pledge the island of Corsica, and several other possessions and dependencies of Genoa. The bank of St. George was pillaged by the Austrians in 1746; and in 1800, when the French were besieged in Genoa, they appropriated the treasure of the bank to the payment of their troops. Since that time the prosperity of the establishment has been at an end: it is no longer used as a place of deposit for money, and its share-holders are but ill-repaid for the robberies committed upon them by the assignment of a portion of the revenues of the town.

The banks of note next established of which we possess any account, were opened in Holland and in Hamburg in the early part of the 17th century. The most celebrated of these was the Bank of Amsterdam, established, in 1609, simply as a bank of deposit to remedy the inconvenience arising from the great quantity of clipt and worn foreign coin which the extensive trade of the city brought there from all parts of Europe. This bank, which was established under the guarantee of the city, received foreign coin, and the worn coin of the country, at its real intrinsic value, deducting only a small per centage which was necessary for defraying the expense of coinage, and the charges of management. The credit given in the bank-books for coin thus received, was called bank-money, to distinguish it from the current money of the place. The regulations of the country directed that all bills drawn upon or negociated at Amsterdam, of the value of 600 guilders (about 55*l.*) and upwards, must be paid in bank-money. Every merchant was consequently obliged to keep an account with the bank, in order to make his ordinary payments.

The Bank of Amsterdam professed to lend out no part of its deposits, and to possess coin or bullion to the full value of the credits given in its books. The necessary expenses and profits of the establishment were provided for by means of certain fees, payable by the merchants upon opening accounts, and upon making transfers, and from small fines

for irregularity. In the account given by Dr. Adam Smith of this bank, he says, 'At Amsterdam, no point of faith is better established, than that for every guilder circulated as bank-money, there is a corresponding guilder in gold or silver to be found in the treasure of the bank. The city is guarantee that it should be so. The bank is under the direction of the four reigning burgomasters, who are changed every year. Each new set of burgomasters visits the treasure, compares it with the books, receives it upon oath, and delivers it over, with the same awful solemnity, to the set which succeeds; and in that sober and religious country, oaths are not yet disregarded.' This was written in 1775; but it appeared, when the French invaded Holland, that the directors had some time before privately lent a sum of nearly one million sterling to the states of Holland and Friesland; and this discovery mainly tended to bring about the ruin of the bank.

The Bank of Hamburg, established in 1619, proceeds upon nearly the same plan as that prescribed for the Bank of Amsterdam. It does not issue notes nor discount bills, but simply receives bullion in deposit. For every bar of silver of a certain fineness (forty-seven parts pure silver and one part of alloy), and of a given weight, called the 'marc of Cologne,' equivalent to 3608 troy grains, the bank gives credit on its books for 442 *lubs* banco money of account; and any person having a credit on the books of the bank may be paid in similar bars at the rate of 444 *lubs* banco. The difference, which is less than one-half per cent., is applied to defray the expenses of the establishment. It does not allow any but citizens of Hamburg to have accounts open in its books. This establishment is understood to be exceedingly well managed. The bank of Nuremberg, opened in 1621, was established upon the same plan as a bank of deposit.

Next in point of date among these establishments, we find the Bank of England, which was opened in 1694. As we propose to devote a separate section to the description of the principles and practice of this bank, we shall not further notice it in this place.

The Bank of Vienna, established in 1703 as a bank of deposit and circulation, subsequently (1791) became a bank of issue. This institution has now in a great measure lost its commercial character, and has become an engine of the government for managing the public debt and finances.

The notes of the Bank of Vienna, which had become the sole circulating medium in Austria, having fallen to a considerable discount by reason of their excessive quantity, a new bank was established in 1816, with the two-fold object of diminishing the paper currency, and of performing the ordinary banking-functions. Its capital consists of 110 millions of florins (about eleven millions sterling), ten-elevenths of which was subscribed in paper-money, and the remainder in coin. The available or trading-capital of the bank is therefore only about one million sterling; the paper currency has been converted into government-bonds, bearing an interest of two and a half per cent., payable in coin. These bonds are not transferable but with the permission of the government, by whom a sinking fund is provided for their gradual redemption at fifty per cent. of their nominal value, upon a plan which, if adhered to, will effect that object in thirty-six years from its commencement.

The Banks of Berlin and Breslau were erected in 1765, under the sanction of the state. These are banks of deposit and issue, and are likewise discounting-offices for bills of exchange.

During the reign of the Empress Catherine, three different banks were established at St. Petersburg; these were, the Loan Bank, the Assignation Bank, and the Loan Bank for the nobility and towns. The first makes advances upon deposits of bullion and jewels, and allows interest upon all sums deposited for at least a year. This bank is carried on for the profit of the Foundling Hospital in St. Petersburg. The Assignation Bank, opened in St. Petersburg and Moscow in 1770, issues the government paper-money, and is in all respects an imperial establishment. The Loan Bank for the nobility and towns advances money on real security. It is likewise a discount-bank, and acts as an insurance company. The Aid Bank, established in 1797, advances money to relieve estates from mortgages, and to provide for their improvement. The punctual payment of interest upon its advances is enforced by taking their estates from the possession of defaulters until the entire debt is discharged.

The Commercial Bank of Russia, which was established in 1818, receives deposits of coin and bullion, and has a department for transferring credits from one account to another, in the manner of the banks of Amsterdam and Hamburg. It is also a bank of discount, and makes advances upon merchandise of home production. Its capital, about a million and a half sterling, is declared to be sacred on the part of the Russian government, and free from all taxation, sequestration, or attachment, as well as from calls for assistance on the part of the state. This bank has branches at Moscow, Archangel, and other important commercial towns in the empire.

The Bank of France, established in 1803, has a capital of ninety millions of francs (3,600,000*l.* sterling), divided into 90,000 shares, called *Bank actions* of 1000 francs each. The bank has re-purchased more than 20,000 of these actions, thereby reducing its actual capital in that proportion. This association alone enjoys the privilege of issuing notes in France. It is besides a bank of deposit and circulation.

This bank is obliged to open an account with any person who may require it; and is not allowed to charge any commission for the transaction of ordinary banking-business. Its profits result from the use of money deposited by its customers, from the issue of its own notes, and from discounts upon mercantile bills; besides which, a charge is made every six months of one-eighth per cent. for the safe custody of plate, jewels, and other valuables upon which it has made advances. The affairs of this bank are managed by a governor and deputy-governor, who are nominated by the King, and by seventeen regents and three censors elected from among the share-holders. A full statement (*compte rendu*) is published every year, which furnishes a complete exposition of the affairs of the bank; and to this regulation we may perhaps attribute, in some degree, the excellence of its management and its present flourishing condition.

The business of banking, as conducted by natives in the interior of India, is chiefly confined to the issuing and discounting of bills of exchange. These native bankers are called Shroffs, and the bills in which they deal are called Hoondees. They do not issue promissory notes payable to bearer. There is a very considerable circulation of hoondees; the interior inland business being principally conducted by their means. The great banking-houses at Benares have branches of their establishments in almost all the principal cities of Hindostan; and by their means remittances from one part of the country to another are greatly facilitated. Europeans have not yet undertaken this branch of business, except at Calcutta and Madras. An attempt was made some years ago by an English house in Calcutta, to establish a bank at Bhauleah, but without success.

There were at one time four private banks in Calcutta managed by Europeans; but two of them have ceased to operate. Only one of these banks issues notes: its circulation was at one time between 40,000*l.* and 50,000*l.*, but its issues have lately been much contracted.

A government bank, under the title of the Bank of Bengal, was opened in 1809. Its capital is 500,000*l.*, one-fifth of which was subscribed by the East India Company. This bank is said to have proved a great convenience to the community and the Bengal government, especially in Calcutta, where its notes chiefly circulate. This establishment receives deposits, discounts bills, and effects remittances to and from country districts, as well as issues its own notes: the amount of its paper in circulation is about 800,000*l.*, in notes varying in amount from ten rupees to 20,000 (1*l.* to 2000*l.*); the largest part is in notes of 100 rupees and upwards. In 1823 the bank obtained a new charter for five years, but exists now under the sufferance of the government. The management is vested in nine directors, three of whom are nominated by the Indian government. The president is chosen from among their own body by the directors. Natives are eligible to become directors, none of whom are paid for their services. A statement of its affairs is submitted twice in each year to the proprietors, and sent to the government. This bank has at times lost considerably through having advanced money on forged documents to natives, who are great adepts at this kind of dishonesty. Although thus closely connected with the government, the bank does not transact its money business. The government keeps its own treasury quite distinct, but frequently holds a considerable sum in the notes of the bank.

The average dividend made to the proprietors has been from nine to ten per cent.: the stock bears a high premium.

There is a bank at Madras which is altogether a government concern. It receives deposits, discounts bills, and issues notes which have no circulation beyond the limits of the city of Madras. The business transacted by this establishment is not of any great extent: it yields an annual profit of about 10,000*l*. to the East India Company.

Bombay has no banking establishment. Some years ago the resident government proposed to form one; but their suggestion was disapproved by the Court of Directors in London. The reasons for this disapproval are said to have been the danger of abuse; the difficulty of exercising any effectual control; and the apprehension that the grant of a charter must, in the public estimation, constitute the bank a government concern, even though the government should have no other connexion with it.

II. *Objects and General Principles of Banking.*—From what we have already stated, it will be seen that banking establishments are undertaken with very different objects, and are prosecuted by very different methods. The whole may be divided into three classes, viz., banks of deposit, banks of issue, and banks which exercise both these functions.

Banks of deposit, strictly speaking, are those which, like the old bank of Amsterdam, simply receive the money or valuables of others into custody, and keep them hoarded in their coffers till called for by the depositors. However convenient such an establishment may be to the persons by whom it is used, it must be evident that it can contribute nothing to the general wealth of a community, and that the only means of profit which it provides for those who conduct it, must arise from payments, made by its customers in the shape of commissions, or fines which partake of the nature of commissions. If, instead of burying the clipt and worn coins of which its hoards were composed, the Bank of Amsterdam had converted them into money of the proper standard, and had lent the same at interest upon proper securities, no commissions need have been required from its customers, who would in so far have been benefited; and a considerable capital being set free for the prosecution of commercial enterprises, the country might have thence derived continued additions to its wealth.

Banks of deposit, in this confined sense of the word, are now very little used, and the term is generally understood to mean an establishment which *lends* as well as *takes* the property of others, and derives its profits from charging a higher rate of interest than it allows. Some banks of this description, such as the private banks in London, do not allow any interest upon sums placed in their custody.

In like manner there are few, if any, establishments which are purely banks of issue. A banker sends forth his promissory notes, after incurring the necessary expenses, that he may employ to his own profit, during the time that the notes remain in circulation, the money or property for which he may have exchanged them, and by this course he gives to his establishment the mixed character of a bank of issue and of circulation. The expression, bank of circulation, is frequently understood to signify a concern which issues its own notes, but it seems better, for the sake of perspicuity, to draw the distinction here made. In general, those bankers who issue their own notes and circulate the money of others, which by that means comes into their possession, likewise receive deposits: this at least is the practice in this kingdom. In each of the cases described, with the exception of the first, the practice of which has become nearly obsolete, the object of a banker is to raise a borrowed capital, over and above his own real capital, with which to supply the wants of others who are willing to pay for its use.

Persons who follow this line of business, and more especially associations formed for the same purpose, usually possess considerable wealth, and are thought deserving of confidence on the part of the public; and there can be no doubt, that so long as they conduct their business with integrity and prudence, they are of material service in giving life and activity to commercial dealings. They are, in fact, the means of keeping that portion of the floating capital of a country fully and constantly employed, which but for their agency would frequently lie dormant and unproductive for uncertain periods in the hands of individuals. Public banks, when established under proper regulations, and subjected to efficient control, are calculated to produce this benefit in the greatest degree, and if at any time their course of management has been such as to counteract the advantages they bring, and to derange the money dealings of the country in which they are established, the evil has arisen from the want of an adequate acquaintance with the principles upon which their proceedings should be founded. In this respect, public banks may indeed be rendered in the highest degree public nuisances, but such an effect is far from being the necessary attendant of the banking system; on the contrary, it may be confidently affirmed, that no institutions are so well calculated to preserve order and steadiness throughout commercial transactions. In this country, and in our own day, we have seen and felt the disastrous effects of a want of knowledge in this branch of political science on the part of those who have directed our national bank, one of the most powerful engines of modern times, and it has only been through the discussions and investigations that have arisen out of those disasters that we have at length brought out, so as to be felt and acknowledged and acted upon, sound and safe principles for regulating that trade by which all other trades are principally regulated.

In the celebrated report delivered by the committee of the House of Commons, appointed, in the year 1810, to inquire into the causes of the high price of bullion, and its effect on the circulating medium, we find recorded some of the wildest theories that could well be conceived, and which were then gravely put forth and acted upon by what were called practical men. Among others, the governor and deputy-governor of the Bank of England, men who, from their station and commercial standing, must have had considerable experience in regard to the working of financial operations, both concurred on that occasion in the opinion, that the amount of notes issued by the bank could not in any way operate upon the price of bullion or the state of foreign exchanges; and 'stated to the committee a doctrine, of the truth of which they professed themselves to be most thoroughly convinced, that there can be no possible excess in the issue of Bank of England paper so long as the advances in which it is issued are made upon the principle which at present guides the conduct of the directors that is, so long as the discount of mercantile bills is confined to paper of undoubted solidity, arising out of real commercial transactions, and payable at short and fixed periods.'

The fallacy of this position has been so fully shown, both by the committee above mentioned and on subsequent occasions, that although it was then probably held to be sound doctrine by the majority of commercial men, it has since been wholly abandoned as untenable, by every one who has examined the subject: it is not therefore necessary to refute it here. But for the unnatural state of things arising out of the act which restrained the Bank of England from paying its notes in gold, such a doctrine could not have been safely acted upon for many weeks together, and would have brought on its own refutation through the demands for bullion that would have drained the coffers of the bank.

The true principle upon which bank issues should be governed is now understood to be that the circulation should at all times be kept full, but without any redundancy; and the simple means whereby this state of things may be determined and regulated are (except on very extraordinary emergencies) offered by the state of the foreign exchanges. Keeping this principle and this indication constantly in view, nothing can be easier than for a powerful establishment like the Bank of England to prevent any recurrence of those disastrous conjunctures which, under the name of panics, have occasionally interfered with the commercial prosperity of the country. The evidence collected by the secret committee of the House of Commons, which sat in 1832, to inquire into the expediency of renewing the charter of the Bank of England, has placed this subject in so clear and questionless a point of view, that it will henceforth be hardly possible for such a conjuncture to arise, except through the misconduct or culpable negligence of the directors of the Bank. A small corrective, if applied in time, by means of an exchange operation, will always suffice to adjust the currency to the wants of commerce, and to check that spirit of wild speculation, the general indulgence in which has too often been fostered by the mistaken conduct of the Bank directors, and which is sure to be followed by wide-spread ruin.

This opinion is not of course meant to apply to *political* panics, against the evil effects of which, it must be obvious, that no prudence on the part of those who regulate the

currency of the country can altogether provide; but such a state of things is very unlikely to arise in the present day, and in every succeeding year we may hope that the spread of information among the people will render such an event still less probable.

We cannot better close this part of the subject than by the following quotation from Dr. Smith (*Wealth of Nations*, vol. ii. p. 69), in his chapter on Money:—'It is not by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwise be so, that the most judicious operations of banking can increase the industry of the country. That part of his capital which a dealer is obliged to keep by him unemployed and in ready money, for answering occasional demands, is so much dead stock—which, so long as it remains in this situation, produces nothing, either to him or to his country. The judicious operations of banking enable him to convert this dead stock into active and productive stock—into materials to work upon, into tools to work with, and into provisions and subsistence to work for: into stock which produces something both to himself and to his country. The gold and silver money which circulates in any country, and by means of which the produce of its land and labour is annually circulated and distributed to the proper consumers, is, in the same manner as the ready money of the dealer, all dead stock. It is a very valuable part of the capital of the country which produces nothing to the country. The judicious operations of banking, by substituting paper in the room of a great portion of this gold and silver, enable the country to convert a great part of this dead stock into active and productive stock—into stock which produces something to the country. The gold and silver money which circulates in any country may very properly be compared to a highway, which, while it circulates and carries to market all the grass and corn of the country, itself produces not a single pile of either. The judicious operations of banking, by providing (if I may be allowed so violent a metaphor) a sort of waggon-way through the air, enable the country to convert as it were a great part of its highways into pastures and corn-fields, and thereby to increase very considerably the annual produce of its land and labour.'

III. *History and Constitution of the Bank of England.*—This establishment, unquestionably the largest of its kind in Europe, was projected by a Scotch gentleman, Mr. William Patterson, in 1694. The scheme having received the sanction and support of the Government, to whom the whole of the capital was to be lent, the subscription was filled in ten days from its being first opened; and on the 27th of July, 1694, the Bank received its charter of incorporation. This charter provides, 'that the management and government of the corporation be committed to a governor, deputy-governor, and twenty-four directors, who shall be elected between the 25th of March and the 25th of April every year, from among the members of the company;—that those officers must be natural-born subjects of England, or have been naturalized;—that they shall possess, in their own names and for their own use, severally, viz., the governor (at least) 4000*l.*, the deputy-governor 3000*l.*, and each director 2000*l.* of the capital stock of the said corporation;—that thirteen or more of the said governors and directors (of whom the governor or deputy-governor shall be always one) shall constitute a Court of Directors, for the management of the affairs of the company;—that no dividend shall at any time be made by the said governor and company, save only out of the interest, profit, or produce arising out of the said capital stock or fund, or by such dealing as is allowed by Act of Parliament.' Each elector must be possessed of at least 500*l.* capital stock of the company. Four general courts to be held in every year, in the months of April, July, September, and December; and special general courts to be summoned at all times upon the requisition of nine qualified proprietors. The majority of electors present at general courts to have the power of making bye-laws for the government of the corporation; but such bye-laws must not be repugnant to the laws of the kingdom.

The original capital of the Bank, which amounted to 1,200,000*l.*, was, as already mentioned, lent to Government, who paid interest for the same at the rate of 8 per cent., with a further allowance of 4000*l.* a year for management.

The first charter was granted to continue for eleven years certain, or till a year's notice after the 1st of August, 1705.

In 1697 a new subscription was raised and lent to Government to the amount of 1,001,171*l.* 10*s.*, which sum was repaid in 1707, and the capital again reduced to its original amount. In the following year the charter was renewed until 1732; and in 1713 a still further extension was granted for ten years, or until 1742. On the first of these occasions the capital was raised by new subscriptions to 5,559,995*l.* In 1722 further subscriptions were received, amounting to 3,400,000*l.*; and in 1742, when the charter was again renewed until 1764, a call made upon the stockholders raised the entire capital to 9,800,000*l.* A further call of 10 per cent. upon this amount was made in 1746. The charter was again renewed until 1786; but previous to the expiration of this term, was continued until 1812, a call of 8 per cent. having been made in 1782. In 1800 the charter was further extended until twelve months' notice after the 1st of August, 1833; and in 1816 the directors were empowered to appropriate a part of their undivided profits among the proprietors, by adding 25 per cent. to the amount of their stock. These successive additions raised the capital of the Bank to 14,553,000*l.*, the whole of which amount was, as it was raised, lent to Government. At the last renewal of the company's charter, which was granted in 1833 (Act 3 and 4 Wm. IV. c. 98), a provision was made for the repayment, on the part of the public, of one-fourth part of the debt due to the Bank. At each of the times before mentioned for the renewal of the charter, some advantage was given by the Bank to the public, in the shape of an advance of money at a low rate of interest, or without any interest. At present, the rate paid by Government for the Bank capital is 3 per cent. per annum.

From its first institution, the Bank of England has discounted mercantile bills. The rate of discount charged fluctuated at first, but was usually between 4½ and 6 per cent. In 1695 a distinction was made in this respect, in favour of persons who used the Bank for purposes of deposit: for such persons inland bills were discounted at 4½, and foreign bills at 3 per cent.; while to all other persons the rate was 6 per cent. upon both descriptions of bills. After that time the rates were equalized to all classes, and fluctuated between 4 and 5 per cent. until 1773, when 5 per cent. was fixed as the rate of discount upon all descriptions of bills; and at this per centage the Bank continued to discount bills until June, 1822, when it was lowered to 4 per cent. The rate was again advanced to 5 per cent. during the panic, in Dec. 1825; but was lowered in July, 1827, to 4 per cent., and has continued at that rate since.

Shortly after its first establishment, the Bank was involved in some difficulties, and was obliged, in 1696, even to suspend the payment of its notes, which were then at a considerable discount. Having received assistance from Government, this difficulty was soon surmounted; and the establishment was not again placed in the same dilemma until 1797, when the celebrated Bank Restriction Act was passed, which will require a more particular notice.

In 1708 an Act was passed, greatly in favour of the Bank of England, declaring that 'during the continuance of that corporation it should not be lawful for any other body politic, erected or to be erected, other than the said Governor and Company of the Bank of England, or for any other persons whatever united, or to be united, in covenants of partnership exceeding the number of six persons, in that part of Great Britain called England, to borrow, owe, or take up any sum or sums of money on their bills or notes payable on demand, or in any less time than six months from the borrowing thereof.' This Act continued in force until 1826, when it was partially repealed, so as to admit of the formation of banking establishments for the issue of notes with more than six partners, at any distance exceeding sixty-five miles from London; but these establishments were restrained from having any branches in London; and it was expressly declared that the partners, jointly and severally, should be held liable for all the debts of the bank with which they might be connected.

Until a very recent period, it was not doubted that the Act of 1708, as above described, forbade the formation of banks of all descriptions having more than six partners, and this impression was universally acted upon. Even the discussions which preceded the partial relaxation of its provisions, in 1826, failed to suggest any different views regarding it. During the negociations of 1833 for the renewal of the Bank Charter, strong doubts were conceived upon the point as to whether the restriction was not confined to the forbidding only of banks of issue; and the law-officers

of the crown, having been called upon for their opinion on the subject, gave it as their decided opinion, that banks, provided they did not issue their own notes payable to bearer, might have been at any time established in any part of the kingdom. To remove all doubts upon the subject, a clause was introduced in the Act of 1833, expressly authorising the establishment of banks, which do not issue notes, with any number of partners, in any place within or without the limits to which the exclusive privilege of the Bank of England, in regard to issuing notes, now applies.

The Bank is expressly prohibited from engaging in any commercial undertaking, other than transactions purely and legitimately connected with banking operations, such as the buying and selling of coin or bullion, and bills of exchange. But a power being given to the corporation to advance money upon the security of goods and merchandise, it was of course necessary to empower the directors to sell the same for their reimbursement.

In the year 1759 the Bank began to issue notes for 10*l.*, having previously not put any into circulation below 20*l.* Notes of 5*l.* value were first issued in 1793, and in March, 1797, 1*l.* and 2*l.* notes were brought into use. The issue of the latter, except in one partial instance, ceased in fact in 1821, and by law on the 5th of April, 1829, since which time 5*l.* is the smallest sum for which any bank in England may send forth its notes payable to bearer.

The necessity for the issue of notes for so small an amount as 1*l.* arose out of the act of 1797, which restricted the Bank from making payments in gold, a measure which was forced upon it by the financial operations of the government, then very largely indebted to the corporation. The contest in which this country was at that time engaged, although not actually so expensive as the war became at a subsequent period, brought with it demands upon the Treasury, which were the more difficult to be met owing to the comparative inexperience of the minister in raising extraordinary supplies. These demands could then only be answered through the assistance of the Bank; and as nearly all the sums drawn from it resolved themselves into bullion to be sent abroad, its coffers were so nearly exhausted, that towards the end of February, 1797, it became manifest that the continuance of the drain for a very short time longer would find the directors without the power of answering it. Under these circumstances it became a matter of necessity as well as of justice towards the Bank to interpose, and to shield it from a catastrophe towards which it had been hurried through yielding to the solicitations for assistance made by the government. On Saturday, the 25th of February, only 1,270,000*l.* in coin and bullion remained in the coffers of the Bank. On the following day an order in council was issued, prohibiting the directors from paying their notes in specie until the sense of parliament could be taken on the subject. The promulgation to the public of this order being accompanied by assurances of the affluent circumstances of the corporation, as well as by a declaration on the part of the leading bankers and merchants of London pledging themselves to receive bank-notes in payment of any sums due to them, failed to make any injurious impression. A committee of the House of Commons was immediately afterwards appointed to inquire into the affairs of the Bank, which committee reported that a surplus of effects to the amount of 3,825,890*l.* was possessed by the corporation over and above its capital of 11,684,800*l.* then in the hands of government. The circumstances by which this measure was rendered necessary were altogether of a political nature, and the only blame that can be attached to the directors of the Bank for their conduct on that occasion arises out of their abandonment of their own better judgment to the urgent solicitations of the government, made upon the plea of a strong necessity in the then alarming situation of public affairs. In the contest then carried on, which, with only a few months' interval in 1801 and 1802, continued until 1815, and which involved the country in expenses of unparalleled magnitude, it was considered indispensable for the government to be provided with a powerful engine for carrying on its financial operations, and it was thought also to have been necessary, under those circumstances, to remove from the engine thus employed the ordinary responsibilities which should attach to a banking establishment. The minister who directed the affairs of England at the time of the passing of the Restriction Act seems to have been fully impressed with this necessity, and to have had in view the political convenience of the government rather than the private advantage of the Bank, or the interests of the public as distinct from the government, when, on the second renewal of the Restriction Act, he prevailed upon parliament to continue its duration until one month after the conclusion of war, by a definitive treaty of peace. The period thus contemplated having arrived at the close of 1801, it was found necessary, in consequence of the unsettled state of affairs, to prolong the act for a further period; and the war having soon after recommenced, the restriction was again continued until six months after the ratification of a definitive treaty of peace.

The financial efforts of the government having been continued upon a most exaggerated scale up to the very moment of the treaty of peace in 1814, the Bank, which had seconded those efforts, and had made no preparation for so total a change of system, procured the renewal of the Suspension Act until the 5th July, 1816. It would perhaps have been ungracious on the part of the government towards an establishment to whose assistance it had been so largely indebted through a series of years, had a refusal been given to the demand thus made by the Bank; but if this question had at that time been settled with a view to the public good, we may venture to assert that the Restriction Act would not have been renewed. All Europe was at that time in an unnatural state, equally, but not similarly, with ourselves. The situation of this country was in fact the very opposite of that in which all other European countries were then placed. They had been compelled by the operation of the 'Berlin and Milan Decrees' to purchase at enormous prices wretched substitutes for the manufactured goods and colonial produce with which our warehouses were filled to overflowing. It was the inability to export these goods in payment for the naval and military stores and foreign productions which we consumed, that had drained us of gold, while the inability to receive our merchandise had obliged foreigners to take returns for those stores and productions in the precious metals, which they did not want, rather than in our manufactures and colonial produce, by the sale of which, in their own country, they could have made enormous profits. When, therefore, peace returned, and commerce was again allowed to flow into its natural channels, we found anxious customers, at high prices, for goods which had before been ruinously depressed, and it became as impossible to keep the gold out, as it had, under the contrary circumstances, been to retain it within the kingdom.

Had the Bank of England at this time contracted its issues in only a very trifling degree, its notes would have been restored to their full value, measured by the price of gold, a fact which can hardly be doubted if we consider how large a proportion of their depreciation was recovered under a directly opposite course of proceeding. At the end of 1813, the amount of Bank of England notes in circulation was 23,844,050*l.*, the price of gold was 5*l.* 10*s.* per ounce, and the depreciation of Bank-paper consequently amounted to 29*l.* 4*s.* 1*d.* per cent. At the end of 1814, the Bank issues were increased to 28,232,730*l.*, and the price of gold had fallen to 4*l.* 6*s.* 6*d.* per ounce, so that the notes were depreciated only to the extent of 9*l.* 19*s.* 5*d.* per cent. This statement, drawn from documents furnished by the Bank directors to parliament, makes it even doubtful whether any contraction whatever of their issues was necessary in order to restore Bank of England notes to their par value. The rise in value which they actually experienced, amounting to 19*l.* 4*s.* 8*d.* per cent., or nearly two thirds of their depreciation, was occasioned, in the face of an increased issue of more than 18 per cent., by the great quantity of gold poured into the country at the re-opening of our commerce, and no doubt also in some degree by the diminished circulation of the notes of country bankers.

This state of things could not last long. Gold can never continue to circulate in the presence of an inconvertible paper currency, and an opportunity, the best that could possibly have offered for extricating ourselves from a false position, and for restoring our currency to a sound and healthy state, was suffered to pass away unimproved. The reason for this neglect is sufficiently obvious. The Bank directors, however blameless for the state of things which first caused the restriction, soon found that measure productive of enormous profits to their establishment, and were anxious to prolong its operation by every means within their power; and the ministers, who had still large financial operations to make, found it most to their convenience to effect them in a redundant paper currency.

Except at the very moment of its enactment, the Bank Restriction Act was for some time so little needed for the security of that corporation, that its notes, during the first three years of the system, were fully on a par with gold, and sometimes even bore a small premium. In less than seven months after the Suspension Act was first put in force, the directors of the bank passed a resolution, in which they declared that the corporation was in a situation to resume with safety making payments in specie, if the political circumstances of the country did not render such a course inexpedient. After a time, the suspension was found to be so convenient and profitable to the Bank, that the wish to recur to cash payments was no doubt abandoned by the directors. In 1801 and the following year, Bank notes, owing to their excessive quantity in circulation, fell to a discount of 7 to 8 per cent., but partially recovered in 1803, and remained until 1810 within 2 or 3 per cent. of par. In the year last mentioned the depreciation occurred which led to the appointment of the celebrated Bullion Committee. The issues of the Bank, which on the 31st August, 1808, were 17,111,290*l.*, had increased to 19,574,180*l.* in the following year, and on the 31st August, 1810, amounted to 24,793,990*l.*, being an increase of about 45 per cent. in two years—a cause quite sufficient to account for their depreciation. In 1811 the circulation was diminished to 23,286,850*l.*, and the discount was reduced to 7¾ per cent. A further issue again depressed the value of Bank notes, as compared with gold: on the 31st August, 1814, the amount in circulation was 28,368,290*l.*, and the depreciation amounted to 25 per cent. It is seldom that cause and effect can be thus clearly shown in relation to each other. In consequence of the material fall in the value of agricultural produce, which took place in 1813 and 1814, such serious losses were sustained by the country bankers in various parts of the country, that in 1814, and the two following years, 240 of them failed; and the general want of confidence thus occasioned, so far widened the field for the circulation of Bank of England notes, that although the amount of them in circulation increased, in 1817, to 29,543,780*l.*, their value relatively to that of gold was nearly restored.

In 1817, having accumulated nearly twelve millions of coin and bullion, the Bank gave notice in the month of April, that all notes of 1*l.* and 2*l.* value, dated prior to 1816, might be received in gold. In the September following, a further notice was given that gold would be paid for notes of every description dated prior to 1817. The effect of these measures was to drain the Bank of a large portion of its bullion, so that in August, 1819, no more than 3,595,960*l.* remained in its coffers, and an act was hurried through parliament to restrain the Bank from acting any further in conformity with the notices here mentioned.

In the same year the bill was passed, commonly known as Mr. Peel's Bill, which provided for the gradual resumption of cash payments. Under the provisions of this law, the Bank Restriction Act was continued in force until the 1st of February, 1820; from that time to the 1st of October in the same year, the Bank was required to pay its notes in bullion of standard fineness at the rate of 4*l.* 1*s.* per ounce; from 1st of October, 1820, to 1st of May, 1821, the rate of bullion was reduced to 3*l.* 19*s.* 6*d.* From the last-mentioned day, bullion might be demanded in payment for notes at the Mint price of 3*l.* 17*s.* 10½*d.* per ounce; and on the 1st of May, 1823, the current gold coin of the realm might be demanded. The provisions of this act, as here mentioned, were respectively anticipated in point of time, and on the 1st of May, 1821, the Bank recommenced the payment of their notes in specie.

One of the provisions of this act arose out of a suggestion made by the late Mr. Ricardo, which appears calculated to afford every requisite security against the evils to which any system of paper currency is exposed. The effect of Mr. Ricardo's plan would have been to exclude a metallic currency, with the exception of what might be necessary for effecting small payments, by making Bank of England notes a legal tender, with the obligation imposed on the directors to pay them, on demand, in gold bars of the proper standard, and of a weight not less than sixty ounces for any one payment. This provision, which was temporarily adopted in Mr. Peel's bill, would effectually prevent any depreciation of the notes, and might have a peculiarly good effect in all times of *political* panic, when the greatest part of the mischief arises from the numerous holders of small amounts of notes, and who, on the plan proposed, would be unable, individually, and without some extensive combination for the purpose, to drain the Bank of its treasure. No good reason has ever been yet given to the public against the permanent adoption of this economical suggestion.

On the 22nd of May, 1832, a Committee of Secrecy was appointed by the House of Commons to inquire into the expediency of renewing the charter of the Bank of England, and into the system on which banks of issue in England and Wales are conducted. On the 11th of August following this Committee delivered its report, which was printed by order of the House, and it is to this report, with the evidence and documents by which it was accompanied, that the public is mainly indebted for the establishment of principles calculated to give such consistent and sound views upon the subject of banking as cannot fail to produce the very best results to the community. Containing, as it does, the opinions of our first authorities in matters of political science, and the recorded experience of practical men, this paper was of the greatest advantage to the members of the legislature while discussing and determining the provisions of the act which received the royal assent on the 29th of August, 1833, for renewing the charter of the Bank of England—a brief analysis of which act it may be advisable here to insert.

This act provides that no association, having more than six partners, shall issue bills or notes, payable on demand, in London, or within sixty-five miles of that city, during the continuance of the exclusive privileges granted to the Governor and Company of the Bank of England. The intention of this provision is declared by the act to be, that the Bank 'shall continue to hold and enjoy all the exclusive privileges of banking given by the act 39th and 40th Geo. III., c. 28, as regulated by the act 7th Geo. IV., c. 46, or any prior or subsequent acts of Parliament, but no other or further exclusive privilege of banking. And whereas doubts have arisen as to the construction of the said acts, and as to the extent of such exclusive privilege; and it is expedient that all such doubts should be removed, it is therefore declared that any body politic or corporate, or society, or company, or partnership, although consisting of more than six persons, may carry on the trade or business of banking in London, or within sixty-five miles thereof, provided they do not borrow, owe, or take up in England, any sum of money upon their bills or notes payable on demand, or at any less time than six months from the borrowing thereof during the continuance of the privileges granted by this act to the Governor and Company of the Bank of England.'

All promissory notes of the Bank of England, payable on demand, issued at any place in England, out of London, where the business of banking shall be carried on for or on behalf of the Bank, must be made payable at the place where such notes are issued; and it is made unlawful for the Governor and Company of the Bank of England, or for any person on their behalf, to issue, at any place out of London, any promissory note payable on demand, not made payable at the place where the same is issued.

'Upon one year's notice given within six months after the expiration of ten years from the 1st of August, 1834, and upon repayment, by Parliament, of all sums that may be due from the public to the Bank at the time of the expiration of such notice, the exclusive privileges of banking granted by this act shall cease and determine at the expiration of such year's notice; and any vote or resolution of the House of Commons, signified by the speaker of the said House in writing, and delivered at the public office of the Bank, shall be deemed and adjudged to be a sufficient notice.

'From and after the 1st of August, 1834, unless and until parliament shall otherwise direct, a tender of a note or notes of the Bank of England, expressed to be payable to bearer on demand, shall be a legal tender to the amount expressed in such note or notes, and shall be taken to be valid as a tender to such amount for all sums above 5*l.* on all occasions on which any tender of money may be legally made, as long as the Bank of England shall continue to pay, on demand, their said notes in legal coin; provided always that no such note or notes shall be held a legal tender of payment by the Governor and Company of the Bank of England, or any branch bank of the said Governor and Company. But the said Governor and Company are not to become liable to be required to pay and satisfy, at any branch bank of the said Governor and Company, any note

or notes of the said Governor and Company not made specially payable at such branch bank; but the said Governor and Company shall be liable to pay and satisfy, at the Bank of England in London, all notes of the said Governor and Company, or of any branch thereof.

'No bill of exchange or promissory note made payable at or within three months after the date thereof, or not having more than three months to run, shall, by reason of any interest taken thereon or secured thereby, or any agreement to pay, or receive, or allow interest in discounting, negotiating, or transferring the same, be void, nor shall the liability of any party to any bill of exchange or promissory note be affected by reason of any statute or law in force for the prevention of usury; nor shall any person or persons, drawing, accepting, indorsing, or signing any such bill or note, or lending or advancing any money, or taking more than the present rate of legal interest in Great Britain and Ireland respectively for the loan of money, on any such bill or note, be subject to any penalties under any statute or law relating to usury in any part of the United Kingdom, to the contrary notwithstanding.

'An account of the amount of bullion and securities in the Bank of England belonging to the said Governor and Company, and of notes in circulation, and of deposits in the said Bank, shall be transmitted, weekly, to the Chancellor of the Exchequer for the time being, and such accounts shall be consolidated at the end of every month, and an average state of the Bank accounts of the preceding three months, made from such consolidated accounts as aforesaid, shall be published every month in the first succeeding *London Gazette*.

'One-fourth part of the debt due from the public to the Bank shall and may be repaid.

'A general Court of Proprietors of the Bank shall be held some time between the passing of this act and the 5th of October, 1834, to determine upon the propriety of dividing and appropriating the sum to be repaid as before-mentioned amongst the several persons, bodies politic or corporate, who may be proprietors of the capital stock of the Governor and Company of the Bank of England on the said 5th of October; and upon the manner and the time for making such division and appropriation, not inconsistent with the provisions for that purpose herein contained; and in case such general court, or any adjourned general court shall determine that it will be proper to make such division, then, but not otherwise, the capital stock of the said Governor and Company shall be reduced from the sum of 14,553,000*l*., of which the same now consists, to the sum of 10,914,750*l*., and such reduction shall take place from and after the said 5th of October, 1834, and thereupon, out of the sum to be repaid as herein before mentioned, or by means of the fund to be provided for that purpose, the sum of 3,638,250*l*. shall be appropriated and divided amongst the persons or bodies politic or corporate who may be proprietors on the said 5th of October, 1834, at the rate of 25*l*. for every 100*l*. stock.

'The reduction of the share of each proprietor in the capital stock of the said Governor and Company of the Bank of England, by the repayment before-mentioned, shall not disqualify the present governor, deputy-governor, or directors, or any or either of them, or any governor, deputy-governor, or director who may be chosen in their room at any time before the general court of the said Governor and Company to be held between the 25th of March and the 25th of April, 1835, provided that, at the said general court, and from and after the same, no proprietor of the said corporation shall be capable of being chosen such governor, deputy-governor, or director, or shall continue in his or their respective offices, unless he or they respectively have, and during such his respective office continue to have, in his or their respective name, in his and their own right, and for his and their own use, the respective sums or shares of and in the capital stock of the said corporation, in and by the charter of the said Governor and Company prescribed as the qualification of governor, deputy-governor, and directors respectively.

'No proprietor shall be disqualified from attending and voting at any general court of the Company to be held between the 5th of October, 1834, and the 25th of April, 1835, in consequence of the share of the said proprietor of the capital stock of the said Company having been reduced by such repayment as aforesaid below the sum of 500*l*. of the said capital stock, provided such proprietor had in his own name the full sum of 500*l*. of the said capital stock on the said 5th of October, 1834, nor shall any proprietor be required between the said 5th of October, 1834, and 25th of April, 1835, to take the oath of qualification in the said charter.

'From and after the 1st of August, 1834, the said Governor and Company, in consideration of the privilege of exclusive banking given by this act, shall, during the continuance of such privileges, but no longer, deduct from the sums now payable to them for charges of management of the public unredeemed debt, the annual sum of 120,000*l*.; provided always that such deduction shall in no respect prejudice or affect the right of the said Governor and Company to be paid for the management of the public debt at the rate and according to the terms provided by the act 48th Geo. III., c. 4, entitled "An act to authorize the advancing for the public service, upon certain conditions, a proportion of the balance remaining in the Bank of England for payment of unclaimed dividends, annuities, and lottery prizes, and for regulating the allowances to be made for the management of the national debt."

'All the powers, authorities, franchises, privileges, and advantages given or recognised by the said recited act of the 39th and 40th Geo. III., c. 28, aforesaid, as belonging to or enjoyed by the Governor and Company of the Bank of England, or by any subsequent act or acts of Parliament, shall be, and the same are hereby declared to be, in full force, and continued by this act, except so far as the same are altered by this act, subject, nevertheless, to redemption upon the terms and conditions following,—that is to say, that at any time upon twelve months' notice to be given after the 1st of August, 1855, and upon repayment, by parliament, of the sum of 11,015,100*l*., being the debt which will remain due from the public to the said Governor and Company after the repayment of one-fourth of the debt of 14,686,800*l*., as hereinbefore provided: and upon payment to the said Governor and Company of all arrears of the sum of 100,000*l*. per annum in the said act of 39th and 40th Geo. III. aforesaid mentioned, together with the interest or annuities payable upon the said debt or in respect thereof, and also upon repayment of all the principal and interest which shall be owing to the said Company upon all such tallies, Exchequer orders, Exchequer Bills, or Parliamentary funds which the said Governor and Company, or their successors, shall have remaining in their hands, or be entitled to at the time of such notice to be given as last aforesaid, then, and in such case, and not till then (unless under the proviso hereinbefore contained), the said exclusive privilege of banking granted by this act shall cease and determine at the expiration of such notice of twelve months.'

The circumstance most worthy of remark, in connexion with the act here recited, is the provision whereby bills not having more than three months to run before they become due are taken out of the operation of the usury laws. This provision may perhaps be considered as the first step towards the entire removal from the statute book of an enactment which, while it contradicts the soundest and most obvious principles, operates disadvantageously to the borrower of money, and upon these and other grounds has been repeatedly condemned by committees of the House of Commons.

The clause which provides that notes of the Bank of England and its branches shall be a legal tender in every part of England, as explained by the act already recited, has excited considerable interest among commercial men, some of whom have—it is thought without sufficient grounds—expressed alarm at the provision. The expression 'legal tender,' although certainly correct, is an unfortunate term, as it seems to threaten the mercantile public with the return of those days of ruinous uncertainty in regard to currency which were so commonly experienced throughout the period when, under the Restriction Act, Bank of England notes were in effect a legal tender in every part of the kingdom. The only possible effect of an injurious kind which can attend this regulation is, that in the event of such a conjuncture as shall render the Bank unable to meet its engagements, the holder of its notes who may chance to be removed one or two days' journey from London or the place where they were issued, may be placed in an unfavourable position for exchanging them for specie. This conjuncture, however, no one contemplates at the present day.

The principal advantage to follow from the enactment is this—that it absolves the Bank of England from the expensive necessity in which it was formerly placed, of providing bullion to meet every run that might be made upon

all the country bankers in every part of the kingdom, who, under the present law, may pay the demands on them in Bank of England notes, instead of in specie, as they were formerly obliged to do.

The repayment of one-fourth of the debt due from the public to the Bank has been made by an assignment of 3 per cent. stock, which was previously held by the commissioners for the reduction of the national debt, but no division of the amount has yet been made among the proprietors of the Bank capital, who have judged it most advisable to leave the sum thus rendered available as capital in the hands of the directors.

The principal advantage conferred on the Bank by the legislature consists in the restriction that prevents any other establishment, having more than six partners, from issuing notes payable to bearer in or within sixty-five miles of London. Nor is the advantage of this restriction altogether confined to the corporation in whose favour it is enacted. If more than one bank of issue were in operation in London, the spirit of competition with which each would be actuated might render them less prudent in acting upon those indications which should govern the amount of their circulation. This consideration is of the more importance in London, where the value of the national currency, compared with that of other countries, is finally adjusted by the importation or exportation of gold. No concert would probably exist between rival establishments thus circumstanced. In the event of a redundant circulation becoming evident, the adoption of a prudent course by one party in contracting its issues might even prove the signal to others to endeavour to turn that circumstance to their own immediate advantage by filling up the void thus occasioned. Under such a system the public would be continually subjected to violent oscillations of the currency, the evils of which it would be impossible to calculate.

We learn from the evidence given before the secret committee by certain of the Bank directors, that the principle upon which they proceed in regulating their issues is to have as much coin and bullion in their coffers as may amount to a third part of the liabilities of the Bank, including sums deposited as well as notes in circulation. It is difficult to account for the adoption of exactly one-third, as the proportion calculated to insure the safety of the establishment. In quiet and ordinary times, and when care has been taken to limit the circulation within the amount which would injuriously affect the foreign exchanges, to keep so large a proportion of profitless capital can never be necessary. Under opposite circumstances, when, by an over-issue of paper, prices have been so driven up that gold has become the only profitable species of remittance abroad, experience shows us that the drain upon the Bank thus arising may and will be carried to an extent far beyond the mere redundancy of currency afloat, and the demand for specie may, in such a case, be carried beyond the amount thus arbitrarily chosen for the security of the Bank. Where a vigilant course of management is pursued, a small comparative amount of gold would always suffice to restore the equilibrium when deranged by the accidental changes of commerce; and where a different system is pursued it is difficult to say what quantity of the precious metals, short of the whole liabilities of the Bank, will be found adequate to that end. The action of the public upon the Bank in 1825, when the largest amount of bullion ever possessed by it was so near being wholly exhausted, proves the truth of this position, and shows the necessity of adopting some less questionable rule than the arbitrary one-third.

The Bank of England acts as the agent of the government in the management of the national debt. It receives and registers transfers of stock from one public creditor to another, and makes the quarterly payments of the dividends. For this purpose it employs more than 400 clerks, porters, and messengers, and, previous to the passing of the act of 1833, received from the public in payment for this service, the sum of 248,000*l.* per annum. Of this amount 120,000*l.* per annum is now abated in terms of that act.

The balances of money belonging to the public are kept in the Bank, which in this respect performs the ordinary functions of a private banker. The alteration recently made in the constitution of the department of the Exchequer will add somewhat to this branch of the Bank's business. Many individuals likewise use this establishment as a place of deposit for their money; but as the Bank directors do not give the same facilities to their customers as they receive from private bankers, the proportion of mercantile men who have drawing accounts with the Bank is comparatively small.

Branch banks were established by the Bank of England, in 1828 and 1829, at Swansea, Gloucester, Manchester, Birmingham, Liverpool, Bristol, Leeds, Exeter, Newcastle, Hull, and Norwich. The branch at Exeter has very recently been closed. These establishments have not hitherto been productive of much profit to the corporation, but have proved very convenient to the public. They facilitate the remittance of money between London and the country, and enable commercial men to avoid the expense and risk which previously were attached to those operations. As the Branch Banks do not permit individuals to overdraw their accounts, and make no allowance of interest upon deposits, they are not calculated greatly to interfere with the profits of private establishments, whose customers enjoy those advantages. The business of these branches principally consists in discounting bills, issuing notes which are payable in London and in the place where they are issued, and in transmitting money to and from London. To encourage the circulation of their own notes, these branches are accustomed to discount, at a more advantageous rate than for others, bills brought to them by such country bankers as do not themselves issue notes.

The profits of the Bank of England are derived from discounts on commercial bills; interest on Exchequer Bills, of which a large amount is usually held; the interest upon the capital stock in the hands of government, the allowance for managing the public debt, interest on loans, on mortgages, dividends on stock in the public funds, profit on purchases of bullion, and some minor sources of income. In 1694 the stockholders divided 8 per cent., which was increased to 9 per cent. in the following year; from that time to 1729 the annual dividend fluctuated between 5½ and 9 per cent.; for the next eighteen years the rate was 5½ to 6 per cent.; in 1747 it fell to 5 per cent.; in 1753 to 4½ per cent., which was the lowest rate of profit since its first establishment; from 1767 to 1806 the dividend was gradually increased to 7 per cent., and from 1807 to 1822 the proprietors divided 10 per cent. annually: in 1823 the rate was lowered to 8 per cent., and has so continued to the present time. In addition to these payments, the stockholders have at various times received bonuses to the amount of 6,694,380*l.*, or 57½ per cent. upon the subscribed capital.

The expenses of the Bank are necessarily very great. It maintains an establishment of more than 800 officers, clerks, porters, and messengers, and pays to the stamp office upwards of 70,000*l.* annually as a composition for the duties upon its notes and bills.

The directors of the Bank of England have always declared and acted upon the opinion that secrecy in regard to its condition is important to its prosperity. To such an extent has this feeling been carried, that year after year large and increasing dividends were declared and paid, without the exhibition to the proprietors of a single figure by which such a course could be justified, the simple recommendation of the directors having always satisfied the proprietors as to the policy of preserving this mystery. The printing of the report of the committee of secrecy in 1832 revealed the true condition of the corporation, and it is not likely that the directors will ever again be allowed to involve its proceedings in the same degree of concealment.

IV. *The art of banking, as carried on by private establishments and joint-stock associations in London, in other parts of England, and in Ireland.*— The Italian merchants who, under the name of Lombards, settled in England during the thirteenth century, and previously to that time the Jews, performed the greatest part of the money business of the country. They were not, however, bankers, in the modern acceptation of the word, and in fact the business of banking does not appear to have been carried on among us earlier than the middle of the seventeenth century. The goldsmiths of London, who before that time had restricted their trade in money to the purchase and sale of foreign coin, then extended their business by borrowing and lending money. The latter part of their business— that of lending —was principally transacted with the king, to whom they made advances on the security of the taxes. They allowed interest to the individuals from whom they borrowed, and the receipts which they gave for deposits passed from hand to hand in the same manner as Bank-notes have since circulated.

The taking of interest for the use of money was not rendered legal in England until 1546, when the rate that could be demanded was fixed at 10 per cent. In 1624 the legal rate was reduced to 8 per cent., and a further reduction to 6 per cent. took place in 1651. At this rate it still remains in Ireland, but was lowered in England to 5 per cent. in 1714, at which it now continues. These limitations have always been productive of evil. Money-lenders by profession will always be ready to take advantage of the necessities of borrowers, and being left without competitors among the more conscientious capitalists, demand not only a monopoly price for the use of their money, but also a further sum proportioned to the risk and penalties attending discovery. The Lombard merchants were accustomed to demand 20 per cent. interest, and even more, according to the urgency of the borrower's wants.

The merchants of London had been used to deposit their money for security at the Mint in the Tower of London, whence they drew it out as occasion demanded; but in the year 1640 King Charles I. took possession of 200,000*l.* thus lodged, which of course put a stop to that practice. This state of things preceded and most probably led to the extension of the business of the goldsmiths, as just explained.

This business soon became very considerable, and was found convenient to the government. In 1672 King Charles II., who then owed 1,328,526*l.* to the bankers, borrowed at 8 per cent., shut up the Exchequer, and for a time refused to pay either principal or interest, thus causing great distress among all classes of people. Yielding to the clamour raised against this dishonesty, the king at length consented to pay 6 per cent. interest, but the principal sum was not discharged until forty years afterwards.

There are three private banking-houses still carrying on business in London which were established before the Bank of England. The London bankers continued for some time after that event to issue notes, but have long since ceased to do so, acting solely as depositaries of money, discounters of bills, and agents for bankers established in the country. No restriction has ever existed which prevents private banks in London, having not more than six partners, from issuing their notes payable to bearer; that they have ceased to do so has arisen from the conviction that paper money, issued on the security of only a small number of individuals, could not circulate profitably in competition with that of a powerful joint-stock association. Private bankers in London do not make any charge of commission to their customers, and generally grant considerable facilities to them, both by discounting bills and by temporary loans, either with or without security. Even where this kind of accommodation is not required, it is almost a matter of necessity for every merchant or trader carrying on considerable business to have an account with a banker, through whom he makes his payments, and who will take from him the daily trouble of presenting bills and cheques for payment.

At various times some banking establishments in London have adopted the principle of allowing interest upon deposits placed in their hands, but this has not been found to succeed. The activity which characterizes commercial pursuits in London prevents the deposit of money for any period that would enable a banker to realize such a profit from its use as would justify the allowance of interest to the depositor.

The profits of London bankers are principally derived from discounting mercantile bills either for their customers, or, through the intervention of brokers, for other parties. They have great facilities as regards the security of this business, from the unreserved confidence which they are accustomed to place in one another as to the credit of their respective customers.

The great amount of money transactions daily carried on in London, and which has been estimated at nearly five millions, has led to the invention of a simple and ingenious method for economising the use of money. Almost all these payments are in the form of cheques upon bankers, or of bills of exchange addressed to bankers for payment. At three o'clock every afternoon a clerk from each banking-house proceeds to a house in Lombard-street, called the Clearing House, taking with him all the drafts on other bankers which have been paid into his house that day, and deposits them in drawers allotted to the different bankers. Another clerk is afterwards sent who delivers to the first all the drafts paid into the banking-house up to four o'clock, and these are distributed in the manner already described. He then gives credit to each respectively for the amount of drafts on his own bank which he finds in his own drawer. Balances are then struck, and the claims thus found are transferred from one account to another, and so wound up and cancelled, that each clerk has to settle with probably only two or three others, and transactions to the extent of millions are settled by the employment of from 200,000*l.* to 300,000*l.* in bank notes. On the days appointed for the settlement of accounts at the Stock Exchange, the money transactions thus settled are much larger than at other times, and have amounted to nearly fifteen millions. The money required for the ultimate settlement is not, however, increased proportionally, and has seldom exceeded half a million.

The bills or cheques which bankers do not choose to pay are returned, after the clearing, to the houses by whom they were presented, and by whom the amount is then refunded. Drafts which are not paid in until after four o'clock are sent to the banking-houses upon which they are drawn to be marked for payment on the following day; and this proceeding, which has been adopted for the convenience of the bankers in making up their accounts daily at a certain hour, is of the same effect, as regards the drawers and the persons by whom the drafts are paid in, as if the payment had actually been made.

There were very few country bankers established previous to the American war, but after the conclusion of that contest their numbers increased greatly. In 1793 they were subjected to heavy losses, consequent upon the breaking out of the war, and twenty-two of them became bankrupt. The passing of the Bank Restriction Act was the signal for the formation of many establishments for banking in the country. In 1809, the first year when bankers were required to take out a license, the number issued was 702, which gradually rose to 940 in 1814. In that and the two following years eighty-nine of these bankers failed, and their numbers fell off greatly. In each of the years 1825 and 1826 there were about 800 annual licenses issued, but their numbers were again reduced by eighty bankruptcies, and in 1832 only 636 licenses were demanded.

Country banks in England are all of them banks of deposit and of discount; they act as agents for the remittance of money to and from London, and for effecting payments between different parts of the kingdom. The greater part of them are also banks of issue, and their notes are in many cases made payable at some banking-house in London, as well as at the place where they are issued.

A moderate rate of interest, from 2 to 2½ per cent., is allowed by country bankers upon deposits which remain with them for any period beyond six months: some make this allowance for shorter periods. Where a depositor has also a drawing account, the balance is struck every six months, and the interest due upon the average is placed to his credit. Upon drawing accounts, a commission, usually of a quarter per cent., is charged on all payments. The country banker, on his part, pays his London agent for the trouble which he occasions, either by keeping a certain sum of money in his hands without interest, or by allowing a commission on the payments made for his account, or by a fixed annual payment in lieu of the same.

The portion of funds in their hands arising from deposits and issues which is not required for discounting bills and making advances in the country, is invested in government or mercantile securities in London, which, in the event of a contraction of deposits or issues, can be made immediately available.

The establishment of banks throughout the kingdom has contributed materially to the growth of trade. Without them it would hardly be possible for a manufacturer employing any great number of hands to collect the money required to pay the weekly wages of his people. It is not a valid argument against their utility that occasionally, by the facilities they have afforded, the tendency to overtrading has been encouraged; there are few benefits which are not capable of being abused; but it is to be hoped that the light which has of late been thrown upon the nature of this branch of business will be the means of checking the evils, without much diminishing the good which it is calculated to effect. It has been urged that country bankers have never paid attention to the state of the exchanges, or the circulation of the Bank of England, as indications whereby to regulate their own issues, but that they have

always been anxious to put out their notes whenever they could do so upon what they considered good security; that in this respect 'they are guided only by their own respective interests, each one endeavouring to withdraw as much of his neighbour's paper as he can, and to substitute his own.' This vicious system has received a material check from the suppression of all notes under 5*l.* value, a measure which arose out of the investigations which followed the memorable panic of 1825. The act of 22nd March, 1826, by which this change was effected, provided for the gradual withdrawal of small notes from circulation, by prohibiting the future issue of any stamps for that purpose, and declared that their issue should wholly cease on the 5th of April, 1829. It was on the occasion of the introduction of this act that the Bank of England undertook, at the recommendation of government, to establish branches of its own body in different parts of the country.

The practical effect of this measure of preventing the circulation of notes below 5*l.* value, has been to lessen, in an important degree, the issues of country bankers. Previously to their suppression, the small notes formed more than one-half the circulation of country banks, whose issues have not, however, been reduced in that proportion, owing to an enlarged amount of 5*l.* notes being taken by the public: the reduction, on the whole, has been estimated at 30 per cent. It is generally acknowledged by country bankers themselves, that the description of notes withdrawn formed by far the most dangerous part of their issues; that in the event of any *run* or panic, the notes of 1*l.* value were always first brought in for payment, and that, in consequence, the situation of the country banker is now one of much greater security than it was while small notes were issued.

Up to the present time no local circulation has existed in the great manufacturing and trading county of Lancashire, where Bank of England notes alone pass from hand to hand, but a great number of payments are adjusted by means of bills of exchange drawn upon or made payable by London houses. By a very recent resolution the Joint-Stock Bank of Manchester has determined upon issuing notes.

A very general opinion has been expressed that private or joint stock banks of issue should place adequate security in the hands of the state, so that the holders of their notes could never, under any circumstances, suffer from their insolvency; and certainly there can be no good reason given why they should be left in this respect unfettered, while such ample security is taken from the Bank of England, whose great wealth is matter of notoriety. Securities lodged with the government would consist either in the public stock or Exchequer bills, and would therefore be to some extent productive of profit to the parties by whom they were lodged, although their gains would certainly be in some degree reduced by the measure. Still it appears reasonable that individuals, who are in a manner obliged to receive payments in notes of private establishments, should be protected against the dishonesty or carelessness of the issuers. Banks of deposit are differently circumstanced, as it is at all times optional with individuals whether or not to place confidence in a banker, and it may with safety be left to individuals to look after their own interest in this respect. The deposit of securities might in the end prove no loss to those by whom they were lodged, as the knowledge of the fact would tend to preserve them from runs, which, although they may be successfully met, are known to be at all times productive of heavy losses.

There is another point which, as it stands at present, presents a curious anomaly. The Bank of England, which gives ample security for the amount of its issues, is bound to make returns to government at very short intervals of the amount of its issues and deposits, as well as of the quantity of coin and bullion in its coffers, while private bankers, who give no security, have not the slightest check placed upon them in this respect. It might certainly be inconvenient to individual bankers thus to reveal the state of their business, but it must be allowed that the interests of the public should outweigh all such considerations.

At the time of passing the law for the suppression of small notes in England, provision was made by the legislature in the manner already described, for the establishment of joint-stock banks, which should be banks of issue, at any distance beyond sixty-five miles from London. In consequence of this act more than thirty joint-stock banking companies have been formed in England, principally in the northern and manufacturing districts. Hitherto the result appears to have been advantageous both to their proprietors and the public. The system upon which the business is conducted is the same generally as that pursued by private establishments; but it is, of course, more obligatory upon managers acting for others to use great caution in their dealings, and to adhere rigidly to system, than it is for an individual, or a small number of partners without the same degree of responsibility. For this reason, as well as for the greater security they offer, joint-stock banks may in the end be more to the advantage of the public at large, although they may not offer the same facilities to individual traders as other banks.

The establishment of a joint-stock banking company in London, consequent upon the declaration in the act of 1833, which removed the doubt existing as to the legality of such an undertaking, is yet too recent to allow any estimate to be formed of its usefulness to the public or its profitableness to the stockholders. Much will depend, as regards both these objects, upon the degree of prudence with which its affairs are managed; but it seems difficult, in the absence of experience, to discover why such an undertaking, if cautiously conducted, should not succeed in London, where the field for banking operations is the largest that could be chosen, at least as well as similar associations have succeeded in other parts of the United Kingdom.

A national bank was established by charter in Ireland in 1783, with the same privileges as those granted to the Bank of England by the act of 1708. The original capital of this corporation was 600,000*l.*, and was lent to government at four per cent. interest. The management is vested in a governor, deputy-governor, and fifteen directors. In 1809 1,000,000*l.* was added to its capital. This sum, which was raised by subscription among the proprietors at the rate of 125 per cent., was also lent to government at five per cent. interest. In 1821 the capital was augmented to 3,000,000*l.*, and a further prolongation of the charter was granted in 1808, to expire on January 1, 1838.

The system adopted by and in regard to the Bank of England has on various occasions been extended to the Bank of Ireland. In 1797, when it became necessary to restrict the Bank of England from paying its notes in gold, that measure was, almost necessarily, adopted in Ireland, and in consequence the issue of Bank of Ireland notes increased from 780,000*l.*, which it was in 1797, to upwards of 4,000,000*l.*, before the Suspension Act was ultimately repealed.

This same measure led, as in England, to the establishment of numerous private banks in Ireland; fifty of these were in operation in 1804. The power of issuing notes was greatly abused by these banks, and the mischief thus occasioned was aggravated by other individuals issuing notes also. It was given in evidence by several persons before a committee of the House of Commons, that about this time there were 295 issuers of paper money in Ireland, whose notes were in some cases put forth for a few shillings, and occasionally even as low as 6*d.* and 3*d.* each. These issuers consisted of merchants, shopkeepers, and petty dealers of all descriptions. The consequences might easily have been foreseen; forgeries and frauds innumerable were committed, and it became necessary to put a legal stop to the practice. The mischief recoiled with severity upon the bankers, so that of the fifty who carried on business in 1804, only nineteen remained in 1812. A few had prudently withdrawn from business, but the remainder had failed; and of the nineteen here mentioned eleven became bankrupt in 1820.

The mischief and misery thus occasioned called loudly for the interference of government, and in 1821 an arrangement was made with the Bank of Ireland, by which joint-stock banking companies were allowed to be established at a distance of fifty Irish miles from Dublin. This act was however inoperative, in consequence of its omitting to repeal several vexatious restrictions; and it was not until after the passing of a new act in 1824, by which this error was remedied, that a joint-stock banking company was established in Belfast with a capital of half a million. This was followed in 1825 by the formation of the Provincial Bank of Ireland, with a subscribed capital of two millions, one-fourth part of which has been paid up by the shareholders. The shareholders are principally resident in England, where the management of the bank is conducted, the chief office being in London. This association carries on business in most of the principal cities and towns of Ireland beyond the prescribed distance from Dublin.

Each branch is managed under the control of the directors, by an agent, with the advice and assistance of two or more gentlemen residing in the district, each of whom holds at least ten shares in the bank. The system of business adopted is the same as is followed by the Scotch banks. The company is considered to be in a prosperous condition, its dividends are rising, and the stock is saleable at a high premium. The benefit to the country from the introduction and prudent employment of so much capital has been very great.

In the same year with the formation of the Provincial Bank, the directors of the Bank of Ireland began to establish branches in the country. The notes issued from these branches were not at first payable except in Dublin; but this inconvenience has been rectified by the act 9 Geo. IV., c. 81, which makes it obligatory on all banks to pay their notes at the places where they are issued. The notes of the Provincial Bank are received by the Irish government in payment for duties and taxes equally with the notes of the Bank of Ireland.

The success which has attended the Provincial Bank has brought forth proposals for the formation of a second establishment of the like nature; but this company, although powerfully supported, is not yet in a condition to commence business.

The law of 1826, forbidding the issue of notes under 5*l.* value, does not extend to Ireland.

V. *Scotch system of Banking.*—There are three incorporated public banks in Scotland: one of these, called the Bank of Scotland, was established by act of the Scottish parliament in 1695; another, called the Royal Bank of Scotland, received a royal charter in 1727; and the third, the British Linen Company, was incorporated in 1746 for the purpose of undertaking the manufacture of linen, but now operates as a banking company only: its capital is 500,000*l.*

The capital of the Bank of Scotland was originally 1,200,000*l.* Scots, or 100,000*l.* sterling money, divided into 1200 shares. This capital has since been augmented at different times, and now amounts to 1,500,000*l.* sterling, but of this sum only one million has been paid up by the subscribers. This bank began to establish branches in 1696, and issued notes for 1*l.* each in 1704. It also began very early to receive deposits, for which it allowed interest; and in 1729 introduced the plan of granting credits on cash accounts, which now forms a principal feature of the Scotch banking system.

The nature of these cash accounts consists in the bank giving credit on loan, to the extent of a sum agreed upon, to any individual or house of business that can procure two or more persons, of undoubted credit and property, to become surety for the repayment, on demand, of the sum credited, with interest. When a person has obtained this credit, he may employ the amount in his business, paying interest only upon the sum which he actually uses, and having interest allowed to him from the day of repaying any part of the loan. These loans are advanced in the notes of the bank, whose advantage from the system consists in the call which these credits produce for the issue of their paper, and from the opportunity which they afford for the profitable employment of part of their deposits. In order to render this part of their business as advantageous and secure as possible, it is necessary that the credits should be frequently operated upon; and if the managers of the bank find that they are used as dead loans to produce interest only, or that the operations of the borrower are infrequent, so that the amount of notes called for is inconsiderable during the year, they will speedily put an end to the credit, it being to the interest of the bank to keep up an active circulation of its notes.

These cash accounts are found to be very advantageous to traders, by supplying an additional capital, for the use of which they pay only in proportion to the amount of it which they employ.

The management of the Bank of Scotland is vested in a governor, deputy-governor, twelve ordinary and twelve extraordinary directors. They are chosen every year by the stockholders having 250*l.* of stock or upwards. The management of the various branches, which are opened in all the principal towns in Scotland, is confided to cashiers or agents.

The Royal Bank of Scotland had at first a capital of 150,000*l.*, which has since been increased to 2,000,000*l.* The system of business adopted by this establishment and by the British Linen Company is the same as that of the Bank of Scotland, which has already been described.

The act of 1708, which restrained any association having more than six partners from issuing notes payable to bearer, did not extend to Scotland, where banking companies, with numerous partners dealing on a joint-stock, have long existed. The persons who embark in these undertakings being each answerable with his whole property for the engagements of the bank, the public has always given to them a great degree of confidence, which has in no case been misplaced. In 1793 and 1825, when so many bankruptcies took place among country bankers in England, not one Scotch bank failed to make good its engagements. Some defaulters have since appeared, but not where the number of partners has been large. In another respect the law which regulates the system of banking in Scotland differs from that in force in England. The act of 1826, which put an end to the circulation of notes under 5*l.*, does not extend to Scotland, where a considerable part of the circulating medium of the country is composed of notes of 1*l.* value. Hitherto this circumstance does not appear to have been attended by any mischievous consequences.

All banking establishments in Scotland take in deposits and allow interest upon very small sums lodged with them, a fact which may account for the absence of savings' banks in that part of the kingdom. The interest allowed varies according to the current market rate. The rate has sometimes been as high as 4 per cent., but at present does not exceed 2 to 2½ per cent. It is stated in the Report of the Committee of the House of Commons of 1826, to which the subject of banking in Scotland and Ireland was referred, that the aggregate amount of the sums deposited with the Scotch banks was then from twenty to twenty-one millions, and there is reason for believing that the sum has since been greatly increased. It appeared from the inquiries of the committee just mentioned, that about one-half of the depositors in Scotch banks are persons in the same rank and station as the depositors in savings' banks in England and Ireland.

The chartered and private banks in Scotland have all of them agents in London upon whom they draw bills, but their notes are not made payable except in Scotland.

It is stated in the Report of the Committee of the House of Commons above mentioned, that at the time their inquiry was made (May, 1826), there were thirty-two banks in Scotland, including the three chartered companies. Of the remaining twenty-nine, the National Bank of Scotland had 1238 partners; the Commercial Bank of Scotland, 521; the Aberdeen Town and County Bank, 446: three others had each more than 100 partners; in six the number was between 20 and 100; and in the remaining seventeen banks the number of partners in each fell short of twenty. The greater part of the Scotch banks have branches in connexion with the principal establishment, each branch managed by an agent acting under the immediate directions of his employers, and giving security to them for his conduct. At the date of this report the Bank of Scotland had sixteen branches; the British Linen Company had twenty-seven branches; the Commercial Bank thirty-one; and the total number of branch banks established in Scotland was 133.

The Scotch bankers have a practice which is rigorously adhered to, of exchanging each other's notes twice a week and immediately paying the balances. For that purpose each bank has an agent in Edinburgh, by whom this arrangement is conducted every Monday and Friday. The balances are paid by bills at ten days' date on London. The state of these balances is looked at with great attention: if anything at all wrong in the conduct of a bank were thereby indicated, the others would instantly interfere and force the party to alter its proceedings. This course has proved efficient in guarding against any over issue of bank notes, and in preventing the consequent depreciation of their value. The plan of periodically exchanging notes with each other is partially acted upon in some districts in England, and it is to be regretted that a similar plan cannot be adopted throughout the country. There does not appear to be any obstacle to its practice within different districts; and, if this were done, the security to the public, and to the more prudent among the country bankers, would be much increased.

VI. *System of Banking in the United States of America.*

—The banking business is followed in the United States of America to a very great extent; and, as regards some of its principles, upon a system which requires notice.

The only establishment of the kind that partakes of a national character is the United States Bank. The principal office of this incorporation is in Philadelphia; but it has branches in all the principal commercial towns of the Union.

An United States bank was incorporated in 1790, under a charter for twenty-one years; this having expired in 1811 was not renewed, and it was not until 1816 that the existing institution was incorporated. It has a capital of thirty-five millions of dollars in shares of 100 dollars each. One-fifth of the shares were subscribed by the government. The management is confided to twenty-five directors, who must be stockholders; five of the number are annually nominated by the President of the United States, and the rest are elected by the stockholders. The charter of this bank will expire in March, 1836; a bill for its renewal passed both Houses of Congress in 1832, but has been rejected by the President.

The capital of the 'States' banks existing in 1790 was about two millions of dollars. The Bank of the United States, chartered in 1791, added ten millions of dollars to that amount. Before the closing of this establishment by the expiration of its charter in 1811, there were in the United States eighty-eight state-banks, with capitals amounting to forty-two millions of dollars. A great increase upon this number and amount has since taken place: on the 1st of January, 1831, there were throughout the Union 330 state-banks, whose united capitals amounted to 110 millions of dollars; and from a paper laid before Congress in June, 1831, it appeared that the number of banking establishments was increased to 506, and that the amount of their capital paid up was 205,123,792 dollars.

It may well be imagined that so great and rapid an extension of the banking business could not have arisen altogether from the wants of the community, but must have been based upon a spirit of speculation adverse to its interests. It is therefore not surprising that shortly after the war broke out between the United States and this country in 1812, a great portion of these banks, including all south and west of New England, were obliged to suspend their specie payments. For adopting this measure the American bankers could not adduce the same reason as led to the Restriction Act in England in 1797; they must have been placed in so unfavourable a position solely through the ruinous competition which had led each of them to force as large an amount of its notes upon the public as possible By this means the precious metals were in a manner forced out of the country; and when the war broke out, and confidence began to be shaken, the bankers were wholly unprepared for the change.

The dissolution of the United States Bank in 1811 had favoured this short-sighted policy of private bankers, by widening the sphere of their business, without adding in any way to their means of conducting it. On the contrary, a very large proportion of the stock of the United States Bank having been held by foreigners was remitted abroad, and this being a remittance suddenly called for out of the ordinary course of commerce, was in great part effected by the exportation of the precious metals. The suppression of the United States Bank had been attended by the further consequence of calling new banking establishments into action in order to fill the chasm. In the four years from 1st January, 1811, to 1st January, 1815, no fewer than 120 new banks were chartered, with nominal capitals amounting in the aggregate to forty millions of dollars.

During the general suspension of specie payments in the United States, the paper currency was increased about fifty per cent., and its value was depreciated on the average about twenty per cent. as compared with bullion.

It was not until after the organization of the New Bank of the United States, in January, 1817, that delegates from the banks in the principal commercial states having met at Philadelphia to consider of the circumstances in which their establishments were placed, determined upon simultaneously resuming payments in specie, a measure greatly assisted by the importation of a large amount of bullion by the newly-established public bank.

This course was followed by such a contraction of their issues on the part of private bankers as occasioned great and wide-spread commercial distress. Debts contracted in the depreciated currency became suddenly payable at its par value, while the facilities usually obtained from the bankers for their liquidation were as suddenly stopped by a refusal of discounts. It is at such moments as these, when the returning good sense of a people leads them to restore the soundness of their currency, that the full evils of a departure from true principles are felt. Up to a certain point the depreciation of the currency may be, and frequently is, accompanied by a delusive show of prosperity, but which is sure in the end to have all its fallacy revealed. Mr. Gallatin states that the number of banks that failed between 1811 and 1830, in different parts of the Union, was 165, which had possessed capitals to the amount in the aggregate of near thirty millions of dollars. In some of these cases the loss fell for the greatest part upon the holders of bank-notes and on depositors; the stockholders had 'paid for their shares in their own promissory notes, which remaining in the hands of the bank they afterwards redeemed by delivering up to be cancelled the stock in their names, and thus suffered no loss.'

With one solitary exception—that of the bank of the late Mr. Girard in Philadelphia—all the private banks established in the United States are joint-stock companies incorporated by law, with fixed capitals, to the extent of which only the stockholders are in most cases responsible. The business of all consists in receiving deposits, discounting mercantile bills, lending money on security, and issuing notes. It may afford a clearer view of the system of business pursued by these banks if we give from Mr. Gallatin's excellent pamphlet 'On the Currency and Banking System of the United States,' the following abstract of the situation of the thirty-one chartered banks of Pennsylvania, in November, 1829:—

		Dollars		Dollars
Capital . . .		12,032,000	Bills discounted . .	17,526,000
Notes in circulation .	7,270,000		Public stocks, road, canal, and bridge stocks, debts secured on mortgages, &c . . .	4,620,000
Deposits .	8,758,000		Real estate . . .	1,310,000
		16,028,000	Notes of other banks and due by other banks .	3,338,000
Surplus fund . .		1,142,000	Specie . . .	2,408,000
		D.29,202,000		D.29,202,000

In considering what would be the situation of these banks, in the event of such an impairing of public confidence as would occasion a run upon them, we must not take into the account the item of notes and balances due by other banks, which form part of the deposits, and must go to reduce the sum of 16,028,000 dollars on the other side of the account to 12,690,000 dollars. The proportion which the specie bears to this sum is not quite one-fifth; and although the amount of discounted bills might be progressively diminished by their falling due, it is evident that such a mode of relief to themselves could only be adopted by the banks at the hazard of endangering all the commercial relations of the state, in the prosperity of which their whole safety, as well as the security of the holders of their notes, is involved.

The legislatures of several of the states have by no means neglected this important subject, and have endeavoured to provide for the prudent management of the banks by limiting the amount of their issues in proportion to their capitals, requiring that not less than a certain proportion (generally 50 per cent.) of their nominal capitals shall be actually paid up in gold or silver, and existing in their vaults, before they begin business, and by rendering the directors of each bank personally responsible for the consequences of breaking these and other rules formed for the protection of the public.

In Massachusetts the banks are restrained from issuing notes for a less sum than one dollar. The States of Pennsylvania, Maryland, and Virginia have forbidden the issue of notes of a lower denomination than five dollars. All notes are payable in specie; and if such payment be refused, the bank is liable to pay the holder damages at the rate of 24 per cent. per annum for the time payment is refused or delayed. The banking system of Massachusetts has been much extolled, and in particular the banks of the town of Boston have been held up as models for imitation. Certain it is, that since the passing of the present laws regulating banking, no instance has occurred of the failure of any bank in Boston. This circumstance may in a great measure be accounted for by the fact, that in the event of a run upon

any one of them, the other banks immediately come forward to its assistance with all their disposable resources, provided its total assets can be shown to be equal to the amount of its liabilities; and this assistance would be continued until, by withholding discounts, collecting its debts, and disposing of its assignable securities, it would be enabled to satisfy all claims without inconvenience.

Instances have occurred, disgraceful to the parties concerned, where the directors of projected banks have borrowed for a single day the amount of specie required by law to be in their coffers before the commencement of business—have submitted this borrowed specie to the inspection of the commissioners appointed for the purpose, and have sworn that it formed the first instalment paid by the stockholders in fulfilment of the design of the legislature. Such proceedings cannot have been common; and it may be imagined that no body of men capable of such a juggle would sufficiently enjoy the confidence of their fellow-citizens to be able successfully to embark in a business where that confidence must be so essential a part of the 'stock in trade.'

In New York, Maryland, and some other of the states, the charter of a bank is forfeited from the moment that it refuses to pay its notes or deposits in specie.

There are twenty incorporated banks in the city of New York, some of which paid a bonus to the state for their acts of incorporation. Their capitals amount to twelve millions of dollars. A branch of the United States Bank is also established in the city, and about one-sixth of its capital is considered to be applicable to this station, giving thus a banking capital to the city of about four millions sterling. With the exception of the Bank of the United States, whose smallest note is of five dollars value, all the banks existing in New York issue notes for one dollar and upwards. All the banks discount mercantile bills. No interest is allowed on deposits; and in fact, the activity of the trade of the city is so great in comparison with the capitals of the merchants, that deposits for such a length of time as would justify the payment of interest are unknown.

An Act was passed by the legislature of the state of New York, in April, 1829, called the 'Safety Fund Act,' to the provisions of which 'all monied corporations thereafter to be created or renewed are subjected.' Under one of its provisions, every such corporation is obliged, on the 1st of January in each year, to pay to the treasurer of the state one-half or one per cent., at the option of the managers, on the amount of the capital stock of the bank, and to continue such payment until three per cent. in the whole shall be paid: this fund to remain perpetual in the hands of the treasurer, and to be solely appropriated to the payment of the debts of such banking corporations as may become insolvent. In the meanwhile the proportion of interest arising from its payments is carried to the credit of each bank, after providing for the payment of salaries to certain commissioners who are appointed to investigate at least four times in every year the affairs of each banking corporation in the state. These commissioners are invested with extensive powers to examine the officers of the banks upon oath, to inspect the books, &c.

In all cases where, from the date of their incorporation, and the determination of the directors of any bank not to bring themselves under the provisions of this act, they do not contribute to the Safety Fund, those directors are held personally liable to the full extent of all losses which the shareholders or creditors of the bank under their charge may sustain by reason of their departure from the course of management prescribed by their act of incorporation. Fourteen of the banks in the city of New York were contributors in 1832 to the Safety Fund.

In providing thus strictly for the payment of notes in specie, the legislatures have not insisted that coin of the United States shall alone be used; and it has been the practice to adopt a schedule of prices at which the coins of different countries shall be considered good tender of payment. Some of the banks have fairly enough availed themselves of this circumstance to avoid the expense of being obliged continually to answer every commercial demand for specie. Very shortly after the opening of the New United States Bank, the directors found themselves under a continued necessity of this kind. Having made ample provision from time to time of Spanish dollars, they were constantly drained of them for the purpose of exportation to China, for which purpose that description of coin is well suited. This involved the bank in a constant expense, which was at once avoided by importing to the value of five millions of dollars in the old six-franc pieces of France, now withdrawn from circulation in the latter country, under which circumstance they were purchased on reasonable terms. These pieces they offered in payment at the scheduled price whenever specie was demanded; but as these coins were not adapted to the mercantile purpose in view, they were suffered to remain quietly in the vaults of the bank, which has recently remitted back the whole amount in the original packages to France.

Years.	Amount of Bank of England Notes in circulation in August.	Market-price of Gold per ounce in August.			Difference in value of Bank Notes and Gold estimated at the Mint price.			Price of 3 per Cent. Consols.	Average Price of Wheat per Quarter.		Average Price of British Plantation Sugar.		Daily Wages of Bricklayers at Greenwich Hospital.		Weekly Earnings of Weavers employed in making 72 7-8ths Calicoes. Hand-loom Weavers.		Power-loom Weavers.	
	£.	£.	s.	d.	per Cent £.	s.	d.	per Ct	s.	d	s.	d	s.	d	s.	d.	s.	d.
1792	11,006,969	3	17	6		..		90¼	39	2	57	0	..		..		..	
1793	10,838,214	3	17	6		..		76	51	3	58	0	..		..		..	
1794	10,628,220	3	17	6		..		67⅞	51	8	39	0	..		..		..	
1795	11,458,382	3	17	6		..		66⅝	77	2	62	5	3	0	..		..	
1796	9,531,335	3	17	6		..		62⅝	81	5	62	0	..		..		..	
1797	10,568,216	3	17	10½		..		52½	49	8	64	0	..		..		..	
1798	12,191,025	3	17	10½		..		50	50	4	66	8	..		..		..	
1799	13,259,873	3	17	9		..		66	64	4	55	0	..		..		..	
1800	14,735,378	4	5	0	8	7	8	65¼	134	5	54	0	3	0	..		..	
1801	14,970,321	4	6	0	9	10	11	60⅜	129	5	44	0	..		..		..	
1802	16,887,113	4	3	6	6	14	9	67⅝	67	5	34	0	..		..		..	
1803	17,035,959	4	0	0	2	13	2	54⅜	60	4	43	0	..		..		..	
1804	17,323,994	4	0	0	2	13	2	57⅛	52	1	53	6	..		..		..	
1805	16,296,1[illegible]8	4	0	0	2	13	2	58¼	89	0	49	0	4	10	..		..	
1806	19,072,893	4	0	0	2	13	2	62⅞	81	10	41	0	4	8	..		..	
1807	20,034,112	4	0	0	2	13	2	62⅝	73	5	36	7	4	8	..		..	
1808	17,365,266	4	0	0	2	13	2	65⅝	81	1	35	1	5	0	..		..	
1809	19,357,241	4	11	0	14	7	7	68⅛	88	1	42	5	5	1	..		..	
1810	24,446,175	4	5	0	8	7	8	68¼	113	4	47	8	5	2	..		..	
1811	23,793,115	4	17	6	20	2	7	64¼	86	11	39	3	5	5	9	6	..	
1812	23,182,910	5	5	0	25	16	8	59⅜	140	9	39	1	5	5	11	4	..	
1813	24,024,869	5	10	0	29	4	1	56⅛	116	3	52	1	5	5	12	8	..	
1814	28,979,876	4	11	0	14	7	7	65¼	67	9	69	9	5	5	13	8	..	
1815	27,024,049	4	10	0	13	9	6	56¼	63	8	66	2	5	1	10	10	..	
1816	27,075,854	3	19	0	1	8	6	61¼	76	2	53	4	5	1	9	2	14	0
1817	30,099,908	4	0	6	3	5	5	79⅛	94	0	44	4	5	1	8	4	..	
1818	26,602,837	4	1	6	4	9	0	74	83	8	57	3	5	1	9	8	..	
1819	25,135,130	4	18	0	0	3	3	71¼	72	3	45	10	5	1	8	3	..	
1820	24,453,380	3	17	10½		..		67⅝	65	10	33	3	5	1	8	3	..	
1821	20,327,740	3	17	10½		..		76¼	54	5	30	2	5	1	8	4	14	0
1822	17,464,780	3	17	6		..		80⅜	43	3	28	0	4	10	8	0	..	
1823	19,231,230	3	17	6		..		82¼	51	9	29	3	4	10	4	6	..	
1824	20,293,320	3	17	6		..		93¼	62	0	28	6	4	10	4	6	..	
1825	19,290,560	3	17	10½		..		87⅛	66	6	33	9	4	10	4	3	..	
1826	21,388,010	3	17	6		..		79	56	11	32	4	4	10	..		13	0
1827	22,007,060	3	17	6		..		86⅝	56	9	..		4	10	..		..	
1828	21,357,490	3	17	6		..		87¼	60	5	31	8	4	10	..		..	
1829	19,323,410	3	17	9		..		88½	66	3	28	9	4	9	..		..	
1830	21,082,310	3	17	10½		..		90¼	64	3	25	0	4	9	..		..	
1831	18,165,310	3	17	10½		..		81⅝	66	4	23	8	4	9	..		12	0
1832	17,689,500	3	17	9		..		83¼	58	8	28	10	4	9	7	6	..	
1833	18,483,250	3	17	10½		..		88¼	52	11	29	5	4	9	..		..	

BANKS FOR SAVINGS are institutions of modern invention, established in this country to encourage habits of prudence on the part of the poorer classes, who were previously without any places where they could safely and profitably deposit the small sums which they might be able to set aside from their earnings.

The origin of savings' banks has been attributed to the Rev. Joseph Smith of Wendover, who, in the year 1799, circulated proposals, in conjunction with two of his parishioners, in which they offered to receive from any inhabitant of the parish any sum from twopence upwards every Sunday evening during the summer months, to keep an exact account of the money deposited, and to repay at Christmas to each individual the amount of his deposit, with the addition of one-third to the sum as a bounty upon his or her economy. The depositors were at liberty to demand and receive back the amount of their savings, without this bounty, at any time before Christmas that they might stand in need of their money.

The next institution of this kind that was established, of which we have any account, was founded at Tottenham in Middlesex, by Mrs. Priscilla Wakefield. This, which was called the Charitable Bank, bore a nearer resemblance to the savings' banks of the present day than the Wendover plan. The Tottenham bank was opened in 1804. At first the accounts were kept by Mrs. Wakefield, who was assisted in other respects by six gentlemen acting as trustees, who undertook each to receive an equal part of the sums deposited, and to allow five per cent. interest on the same to such depositors of 20 shillings and upwards as should leave their money for at least a year in their hands. In proportion as the amount of the deposits increased, additional

trustees were chosen, so as to diminish the loss which might otherwise have been considerable, owing to the high rate of interest that was allowed. In 1808 a society was formed at Bath, managed by eight individuals, four of whom were ladies, who received the savings of domestic servants, and allowed interest upon the same at the rate of four per cent.

The Parish Bank Friendly Society of Ruthwell was formed in 1810 by Mr. Henry Duncan, who published an account of his institution with the hope of promoting similar establishments elsewhere. This was the first savings' bank, regularly and minutely organised, which was brought before the public, and it is doubtless owing to the successful example thus set, that previous to the year 1817 there were seventy savings' banks established in England, four in Wales, and four in Ireland.

In the year just mentioned legislative provisions were first made for the management of these institutions. Acts were passed (57 Geo. III. c. 105 and 130) for encouraging the establishment of banks for savings in Ireland and England respectively. Under these acts, the trustees and managers, who were prohibited from receiving any personal profit or advantage from the institutions with which they should be connected, were required to enrol the rules of their institutions at the sessions. A fund was established in the office for the reduction of the national debt in London, entitled, 'The Fund for the Banks for Savings,' and to this fund the trustees were bound to transmit the amount of all deposits that might be made with them when the sum amounted to 50*l*. or more. For the amount so invested the trustees received a debenture, carrying interest at the rate of three-pence per centum per diem, or 4*l*. 11*s*. 3*d*. per centum per annum, payable half-yearly. The rate of interest then usually allowed to depositors was four per cent. In Ireland the depositors were restricted to the investment of 50*l* in each year, and in England the same restriction was imposed, with a relaxation in favour of the first year of a person's depositing, when 100*l*. might be received. No further restriction was at this time thought necessary as to the amount invested, neither was the depositor prevented from investing simultaneously in as many different savings' banks as he might think proper. This circumstance was found liable to abuse, and an act was passed in 1824, which restricted the deposits to 50*l*. in the first year of the account being opened, and 30*l*. in each subsequent year, and when the whole should amount to 200*l*. exclusive of interest, no further interest was to be allowed. Subscribers to one savings' bank were likewise not allowed to make deposits in any other, but the whole money deposited might be drawn from one savings' bank in order to be placed in another.

In 1828 a further act was passed, entitled 'An Act to consolidate and amend the laws relating to Savings' Banks,' and it is under the provisions of this act (9 Geo. IV. c. 92) that all savings' banks are at present conducted. It is provided herein, 'that the rules of every savings' bank shall be signed by two trustees, and submitted to a barrister appointed by the commissioners for the reduction of the national debt, for the purpose of ascertaining whether the same are in conformity to law, and that the said barrister shall give a certificate thereof, which, together with the rules signed by the trustees, shall be laid before the justices for the county, riding, division, or place at the general or quarter sessions; and it shall be lawful for such justices to reject and disapprove of any part or parts thereof, or to allow and confirm the said rules or such parts as shall be conformable to the act.' The rules and regulations thus made and confirmed are to be deposited with the clerk of the peace for the county or division, and are then declared to be binding on the officers and the depositors of the institution. The money deposited in savings' banks must be invested in the Bank of England, or of Ireland, in the names of the commissioners for the reduction of the national debt. The receipts given to the trustees of savings' banks for money thus invested bear interest at the rate of 2½*d*. *per cent. per diem*, or 3*l*. 16*s*. 0½*d*. per cent. per annum, while the interest paid to depositors must not in any case exceed 2¼*d*. *per cent. per diem*, or 3*l*. 8*s*. 5¼*d*. per cent. per annum, the difference being retained by the trustees to defray the expenses of the bank. The trustees are not allowed to receive deposits from any individuals whose previous deposits have amounted to 150*l*., and when the balance due to any one depositor amounts with interest to 200*l*., no further interest is to be allowed. Friendly societies and charitable institutions are allowed to invest sums not exceeding 300*l*.

The increase of savings' banks has been great beyond all expectation. On the 20th November, 1833, there were 385 savings' banks in England holding balances belonging to 414,014 depositors, which amounted to 13,973,243*l*., being on an average 34*l*. for each depositor. There were at the same time in Wales 23 savings' banks, having balances amounting to 361,150*l*. belonging to 11,269 depositors, being an average of 32*l*. for each depositor; while in Ireland there were 76 savings' banks, with funds amounting to 1,380,718*l*., deposited by 49,872 persons, the average amount of whose deposits was 28*l*. The total for England, Wales, and Ireland was consequently 484 savings' banks, with funds amounting to 15,715,111*l*.; the number of accounts open was 475,155, and the average amount of deposits was consequently 33*l*. The system has not hitherto been adopted in Scotland, where it appears to be less needed in consequence of the facilities afforded by bankers in receiving small sums of money in deposit, and allowing interest on them. The establishment of savings' banks in Scotland would, however, extend this advantage to a very large number of persons who are unable to get together the lowest sum that the bankers will receive on interest. On the 20th November, 1833, there were 244,575 depositors of sums under 20*l*. in the savings' banks of England, Wales, and Ireland, whose savings amounted to 1,734,709*l*., being an average of 7*l*. 1*s*. 10*d*. for each depositor: the smallest sum received in deposit by bankers to bear interest in Scotland is 10*l*.

By a recent act (3 William IV. c. 14) the industrious classes are encouraged to purchase annuities, to commence at any deferred period which the purchaser may choose, the purchase-money being paid either in one sum at the time of agreement, or by weekly, monthly, quarterly, or yearly instalments, as the purchaser may determine. The transactions under this act are to be carried on through the medium of savings' banks, or by societies established for the purpose, and of which the rector or other minister of the parish, or a resident justice of the peace, shall be one of the trustees.

Rules framed in agreement with the statute have been issued by the commissioners for the reduction of the national debt. These rules provide, among other things, that no person being a trustee, treasurer, or manager of the society, shall derive any emolument, direct or indirect, from its funds; that the treasurer, and the paid officers of the society, shall give security for the faithful execution of their trust; that the age of the party, or nominee, upon whose life the annuity is contracted, must not be under fifteen years; that no one individual can possess, or be entitled to, an annuity, or annuities, amounting altogether to more than 20*l*., and that no annuity of less than 4*l*. can be contracted for; that minors may purchase annuities. The annuities are payable half-yearly, on the 5th of January and 5th of July, or on the 5th of April and 10th of October. If any person wishes to have an annuity payable quarterly, that object may be accomplished by purchasing one half payable in January and July, and the other half payable in April and October. Upon the death of the person on whose life the annuity depends, a sum equal to one-fourth part of the annuity, beyond all unpaid arrears, will be payable to the person or persons entitled to such annuity, or to their executors or administrators, if claimed within two years. These annuities are not transferable, unless the purchaser becomes bankrupt or insolvent, when the annuity becomes the property of the creditors, and will be repurchased, at a fair valuation, by the commissioners for the reduction of the national debt. If the purchaser of an annuity should be unable to continue the payment of his instalments, he may at any time, on giving three months' notice, receive back the whole of the money he has paid, but without interest. If the purchaser of a deferred life annuity should die before the time arrives at which the annuity would have commenced, the whole of the money actually contributed, but not with interest, will be returned to his family without any deduction. If a person who has contracted for, or is entitled to, an annuity, becomes insane, or is otherwise rendered incapable of acting, such weekly sum will be paid to his friends for maintenance and medical attendance as the managers shall think reasonable, or any such other payments may be made as the urgency of the case may require, out of the sums standing in the name of the party. Any frauds that may be committed by means of misstatements and false certificates will render void the annuity, and subject the parties offending to other

and severe penalties. The rules of societies formed for carrying into effect the purposes of this act must be signed by trustees, certified by the barrister appointed for the purpose, and enrolled with the clerk of the peace for the county or division in the manner already described with regard to the rules of savings' banks.

Annuity tables, calculated under the direction of Government, for every admissible period of age, and for every probable deferred term, may be had at the office of the commissioners for reducing the national debt, in the Old Jewry, London.

This measure appears to be well calculated for enabling the industrious classes to secure a small provision in the time of their youth and strength, for the days of their age and decline, and for inciting them, while yet unencumbered, to apply the surplus of their earnings to meet the wants of those who may become connected with or dependent on them in after life.

(*History of Savings' Banks*, by J. Tidd Pratt; *The Law relating to the Purchase of Government Annuities through Savings' Banks and Parochial Societies*, by the same author.)

BANKRUPT (*banque-routier*, a bankrupt, and *banque-route*, bankruptcy—from *bancus*, the table or counter of a tradesman, and *ruptus*, broken) is a merchant or trader whose property and effects, on his becoming insolvent, are administered and distributed for the benefit of all his creditors, under that peculiar system of statutory regulations called the Bankrupt Laws. These laws, which originated in England with the statute 34 and 35 Henry VIII. c. 4, were first mainly directed against the criminal frauds of traders, who acquired the merchandise and goods of others, and then fled to foreign countries, or lived in extravagance, and eluded and defrauded their creditors. The bankrupt was consequently treated as a criminal offender; and until within a few years, the not duly surrendering his property under a commission of bankruptcy, when summoned, was a capital felony. The bankrupt laws are now, and have for some time past, been regarded as a connected system of civil legislation, having the double object of enforcing a complete discovery and equitable distribution of the property and effects of an insolvent trader, and of conferring on the trader the reciprocal advantage of security of person and a discharge from all future claims of his creditors. These laws were till lately spread over a voluminous accumulation of statutes, referring to and depending on each other, and often creating confusion and inconvenience from their diffuse and contradictory provisions. These were, under the auspices of Lord Eldon, repealed, and their provisions altered and consolidated into the present general Bankrupt Act—6 Geo. IV. c. 16—which at once collected and consolidated the provisions on the subject, and introduced many important alterations and simplifications. The late Act 1 and 2 William IV. c. 56, constituting 'the Court of Bankruptcy,' has materially altered the mode of *administration* of this law: it has entirely removed the jurisdiction in the *first instance* in cases of bankruptcy from the Court of Chancery to the new Court of Bankruptcy, reserving only an appeal from the Judges of that court to the Lord Chancellor, as to matters of law and equity and questions of evidence. Instead of the commission under the Great Seal, which formerly issued to a certain number of barristers-at-law who were permanent 'Commissioners of Bankrupt,' the above Act has substituted a *fiat* of bankruptcy, the proceedings on which will be explained hereafter. Other important alterations are introduced, which will be more fully noticed in their proper place.

In considering the provisions of the Bankrupt Law, we must explain—

1. Who may be made a bankrupt.
2. By what acts a trader becomes liable to be made a bankrupt.
3. The *fiat* and proceedings by which the trader is made a bankrupt.
4. The proof of debts under the *fiat*.
5. The assignees, their powers, and duties.
6. The vesting of the bankrupt's property and effects in the assignees.
7. The effect of the bankruptcy on the rights of third parties.
8. The certificate and allowance of the bankrupt.
9. The Court of Bankruptcy.

1. *Who may be made a Bankrupt.*—The Bankrupt Act, 6 Geo. IV. c. 16, enacts, that 'all bankers, brokers, and persons using the trade or profession of a scrivener, receiving other men's moneys or estate into their trust or custody; and persons insuring ships, or their freight, or other matters, against perils of the sea; warehousemen, wharfingers, packers, builders, carpenters, shipwrights, victuallers, keepers of inns, taverns, hotels, or coffee-houses, dyers, printers, bleachers, fullers, calenderers, cattle or sheep salesmen, and all persons using the trade of merchandise by way of bargaining, exchange, bartering, commission, consignment, or otherwise in gross or by retail; and all persons who, either for themselves or as agents or factors for others, seek their living by buying and selling, or by buying or letting for hire, or by the workmanship of goods or commodities, shall be deemed traders liable to become bankrupts; provided that no farmer, grazier, common labourer or workman for hire, receiver-general of the taxes, or member of or subscriber to any incorporated commercial or trading companies, established by charter or Act of Parliament, shall be deemed, as such, a trader liable, by virtue of that Act, to become bankrupt.'

The above enumeration has given rise to a variety of decisions in the courts of law. It is not every single act, or even every series of acts, of buying and selling which constitutes a man a trader within the law: there must be an intention of dealing generally, and of gaining a livelihood by trading. Thus a schoolmaster who sells books to his scholars; a colonel of militia, who occasionally sells regimental horses; a master of hounds, who buys dead horses, and sells off the skin and bones; a cow-keeper, who lives by selling milk from his cows, and only sells his cows when they become unfit for use; a farmer, who buys and sells articles not with a view of making profit, but merely as auxiliary to the carrying on his farm—these and many similar persons have been held not within the bankrupt laws as traders. And the same has been determined with respect to an owner of coal-mines, who digs and sells his coals; a person having a freehold interest or a term of years in a brick ground, who sells the bricks made from his brick-earth, though if he purchased the materials for making bricks it would be otherwise. If a trader retires from trade, still while his trading debts remain unpaid he may be made a bankrupt in respect of them; but not in respect of debts contracted after his retirement.

2. *The acts by which a Trader becomes liable to be a Bankrupt.*—These acts are of two sorts: first, those which are only acts of bankruptcy when done with *intent* to defeat or delay his creditors; secondly, certain acts which have that effect, without reference to any intention. The first class are enumerated in section 3 of the 6 Geo. IV. c. 16, which enacts, 'that if any such trader shall depart this realm, or being out of this realm shall remain abroad, or depart from his dwelling-house, or otherwise absent himself, or begin to keep his house, or suffer himself to be arrested, or his goods, money, or chattels to be attached or sequestrated, or taken in execution, or make any fraudulent grant or conveyance of any of his lands, tenements, goods, or chattels, or make any fraudulent surrender of any of his copyhold lands or tenements, or make any fraudulent gift, delivery, or transfer of any of his goods or chattels; every such trader doing, suffering, procuring, executing, permitting, making or causing to be made, any of the acts, deeds, or matters aforesaid, *with intent to defeat or delay his creditors*, shall be deemed thereby to have committed an act of bankruptcy.' A few observations will elucidate the several acts of bankruptcy mentioned in the above clause.

Departing the Realm.—This must be done with a view to defeat or defraud creditors, or it will not constitute an act of bankruptcy; but if it is done with such intention it is an act of bankruptcy, though no creditor may, *in fact*, be delayed by it. The intention is, in general, a question of fact to be decided by a jury. If a man leave the realm in such circumstances that a delay of his creditors will be the almost necessary consequence of his departure, he will be considered to have intended that they should be delayed within the meaning of the law. The word *realm* means the jurisdiction of the courts of England, and therefore departing to Ireland or Scotland, or a British colony, which are out of such jurisdiction, may constitute an act of bankruptcy.

Trader departing from his Dwelling House.—If this is done with the intent to delay creditors, it is an act of bankruptcy, though none are actually delayed. And if the

trader departs without making the necessary arrangements for carrying on his business, it will be presumed that he had the intention specified in the act. The absence must be voluntary, and not to avoid an arrest, in order to constitute an act of bankruptcy. And the trader's own declarations of his bad circumstances, of his fears of arrest, &c., are evidence of his intentions, if they accompany corresponding *acts*, such as removing his goods, books, &c.

Or otherwise absent himself.—A trader's absenting himself from his abode, if voluntarily done, and not by means of an arrest, is *primâ facie* evidence of his intention to delay his creditors. And the absenting himself from the Royal Exchange, if he habitually frequents it, or from any temporary place of resort, may have the same effect. The proprietor of a theatre retiring behind the scenes and giving orders to be denied, was held to commit an act of bankruptcy. But a mere breach of an appointment with a creditor will not be so considered.

Or begin to keep house.—These words having been adopted in the early statutes respecting bankrupts, have acquired a well-known technical meaning, signifying the trader's retiring or concealing himself in his house or place of business in order to avoid creditors, or the giving orders to be denied in case they should call. A general order of denial may be an act of bankruptcy although no creditor in fact call on the trader; and the denial may be at a friend's house, as well as at the house of the trader himself. Closing the doors and shutters of a banking-house has been held a 'beginning to keep house,' although the trader did not reside at the banking-house.

Or yield himself to prison.—This must be a voluntary yielding to prison by a trader who, on his arrest, has funds to pay the debt, but prefers going to prison with a view to defeat his general creditors. A compulsory going to prison under an arrest is only an act of bankruptcy when the imprisonment endures twenty-one days.

Or suffer himself to be outlawed.—That is, if a man keep out of the way with intent to defraud his creditors, in consequence of which he is outlawed for want of due appearance to legal process.

Willingly or fraudulently procure his goods to be sequestered.—This extends both to fraudulent attachments of the trader's goods under the custom of foreign attachment in London and other cities [see ATTACHMENT], and to fraudulent judgments and executions out of the superior courts.

Or make, either within the realm or elsewhere, any fraudulent grant or conveyance of his lands, tenements, goods, or chattels.—Before the present Bankrupt Act, a conveyance of the trader's property, if executed abroad, was held not an act of bankruptcy, a defect remedied by the above clause.

An assignment of *all* a trader's effects to trustees for the benefit of creditors is a clear act of bankruptcy, since it goes to defeat the distribution under the Bankrupt Law, and to vest the property in persons of his own choice, instead of those under the control of the Great Seal. But if all the creditors (as often happens) assent to, and sign such an instrument, it becomes valid, since they are then *estopped*, by their assent, from treating it as an act of bankruptcy. And by the 4th section of the 6th Geo. IV. c. 16, such an assignment shall not be deemed an act of bankruptcy unless a fiat issue against the trader within six calendar months from the execution; provided the assignment be executed by every trustee within fifteen days from the date of the execution by the trader, and the execution is attested and publicly notified in the manner pointed out by the statute.

An assignment of *part* of a trader's effects is, in many instances, perfectly good and valid; but if he assign the whole with only some colourable exception, it is an act of bankruptcy; and, in general, if he assign over so considerable a proportion of his stock-in-trade and effects as must disable him from effectually carrying on his trade, it is an act of bankruptcy; and if the assignment be made voluntarily, that is, without the pressure of the creditor, and with a view to prefer a particular creditor, or creditors, it will, though not made in immediate contemplation of bankruptcy, constitute in itself an act of bankruptcy; and, *à fortiori*, it will have that effect if made under such circumstances as show that the trader must, at the time of executing it, have contemplated bankruptcy.

Or make any fraudulent gift, delivery, or transfer of any of his goods or chattels.—The transfer or delivery must, in general, be *voluntary*, and not brought about by terror of legal process, or even by the importunity of a creditor; and, in some cases, even the circumstance of the proposal to make the delivery coming from the creditor and not from the bankrupt, has been held to negative the inference of voluntariness, and to render the transaction valid. But whether of his voluntary motion, or under pressure of a creditor, if a trader transfer over the whole of his effects, or such a portion of them as must necessarily lead to insolvency and the stoppage of his trade, it now constitutes an act of bankruptcy.

The acts of bankruptcy above enumerated depend upon the trader's intention in doing the act. The following are the acts which constitute acts of bankruptcy, whether done with or without an intention to delay or defraud creditors.

By the 5th section of the 6th Geo. IV. c. 16, 'if any trader, having been arrested or committed to prison for debt, or on any attachment for non-payment of money, shall upon such or any other arrest or commitment for debt, or non-payment of money, or upon any detention for debt, lie in prison for twenty-one days, or having been arrested or committed to prison for any other cause, shall lie in prison for twenty-one days after any detainer for debt lodged against him and not discharged, every such trader shall be thereby deemed to have committed an act of bankruptcy; or if any such trader having been arrested, committed, or detained for debt, shall escape, every such trader shall be deemed thereby to have committed an act of bankruptcy from the time of such arrest, commitment, or detention.'

The bankrupt law does not now, and never did, make the mere circumstance of being arrested an act of bankruptcy. The most substantial trader is liable, under unforeseen emergencies, to be arrested; the presumption of insolvency only arises from the fact of lying in prison twenty-one days without being able to procure bail, or of escaping out of prison to avoid payment of the debt.

Filing a declaration of insolvency.—Under the old law, no effectual provision was made for enabling an honest debtor, who believed himself insolvent, voluntarily to subject himself to the bankrupt law, and thereby to produce an equal distribution of his property among his creditors. To remedy this defect, it is provided by section 6 of the 6th Geo IV. c. 16, that if a trader file with the secretary of bankrupts a declaration of his insolvency, signed by himself, and attested by an attorney, the secretary of bankrupts shall sign a memorandum which shall authorize the insertion in the *Gazette* of such declaration, and such declaration shall then become an act of bankruptcy; but the *fiat* upon it must issue within two months after the insertion of the advertisement, and the advertisement must be signed within eight days after the declaration is filed.

By the 8th section of the present bankrupt act, if any bankrupt, after the issuing of any *fiat* of bankruptcy, pay to the person suing out the same, money, or give or deliver to any such person satisfaction or security for his debt, whereby such person may receive more in the pound than the other creditors, such payment or gift shall be void; and if any *fiat* shall have issued, the Lord Chancellor may direct that it be proceeded in, or order it to be superseded, and a new *fiat* may issue, and such *fiat* may be supported either by proof of such last-mentioned or any other act of bankruptcy.

In addition to the above acts of bankruptcy, the circumstance of a debtor filing a petition for his discharge under the Insolvent Debtors' Act is, by the statute 7th Geo. IV. c. 57, declared an act of bankruptcy, on which a *fiat* may be issued.

Acts of bankruptcy by traders who have privilege of parliament.—As traders being members of parliament are not liable to personal arrest for debt during the time of privilege, some special provisions were requisite as to acts of bankruptcy committed by such persons. Accordingly, section 9 of the bankrupt act, 6 Geo. IV. c. 16, provides that if any trader having privilege of parliament commit any of the before-mentioned acts of bankruptcy, a commission (*fiat*) of bankruptcy may issue against him, and the commissioners, and all other persons acting under the *fiat*, may proceed as against other bankrupts; but such trader shall not be subject to be arrested during the time of privilege, except in cases made felony by the bankrupt law.

By sec. 10, if any creditor of such trader, to such amount as is required to support a fiat, shall file an affidavit that any such debt is justly due to him, and that such debtor is

a trader, and shall sue out a summons against him (in the form given by the 2 Will. IV. c. 39, the Uniformity of Process Act)—if such trader shall not within one month pay or secure the debt, or enter into a bond with two sureties, to be approved of by a judge, to pay the sum recovered in the action against him, with costs, and within one month after service of such summons cause an appearance to be entered in such action, every such trader shall be deemed to have committed an act of bankruptcy; and any of his creditors may sue out a *fiat* against him, as against other traders.

And by sec. 11 it is enacted, that if any decree or order of a Court of Equity or Bankruptcy, shall have been pronounced, ordering any such trader, having privilege of Parliament, to pay money, and such trader shall disobey the same, the person entitled to receive it may apply to the Court to fix a peremptory day for the payment; and if such trader shall then neglect to pay the same, he shall be deemed to have committed an act of bankruptcy; and any of his creditors may sue out a *fiat*, and proceed as against other bankrupts.

The above are the various and the only acts which, according to the present law, render a trader liable to a *fiat* of bankruptcy. No other acts, however strongly they may indicate insolvency or fraudulent intention in the trader, are sufficient to render him a *bankrupt*. The act of bankruptcy may be committed after a trader has ceased trading; for so long as his *trading* debts remain unpaid, he is amenable to the law of bankruptcy. The debt, however, on which the *fiat* is grounded must of course be one which was contracted during the period of his trading. The act of bankruptcy, in order to ground a *fiat*, must not be concerted and arranged with the creditor who prosecutes the *fiat*, except in the particular instance of the act of bankruptcy lately introduced—viz., a declaration of insolvency filed at the Bankrupt Office. And although the act of bankruptcy will not be sufficient, if concerted, yet, if a sufficient act of bankruptcy has been *bonâ fide* committed by the debtor, there is no objection to the *fiat* issuing under a concerted arrangement between the bankrupt or his solicitor and the petitioning creditor or his solicitor. (See 1 and 2 Will. IV., c. 56. s. 42.)

3. *Of the fiat and proceedings by which a Trader is made a Bankrupt.*—Having considered what persons may be rendered bankrupts, and the several acts and circumstances by which they may become so, we will now shortly explain the peculiar mode of proceeding by which creditors render their debtor a bankrupt.

The *fiat* of bankruptcy issues on a petition of one or more creditors to the Lord Chancellor.

If on the single petition of one creditor, his debt must amount to 100*l.*; if of two creditors, not being partners, to 150*l.*; if of three or more creditors, to 200*l.* This debt must have been contracted while the bankrupt was in trade, or must at least have been at that time subsisting; and it must have been actually due at the time of the act of bankruptcy. If the debt of the petitioning creditor appears on any ground insufficient, the *fiat* may, under the order of the Lord Chancellor, be supported on any other debt of another creditor which is legally adequate to sustain it. The petitioning creditor is bound to support the validity of the bankruptcy, and may be compelled to furnish the assignees (of whom we shall speak presently) with all necessary information and assistance for that purpose: he sues forth and prosecutes the *fiat* at his own cost until the choice of the assignees, when the commissioners are to ascertain such costs, and order the assignees to repay them to the petitioning creditor, out of the first moneys coming to their hands. In the case of a firm of traders, any creditor whose debt is of sufficient amount may petition either against the firm collectively, or against one or more partners in it. The first step of the petitioning creditor is to ascertain, by a search at the Bankrupt Office, that no proceedings have been previously taken for the issuing a *fiat* against the trader. He then takes oath, before a Master in Chancery, as to the amount of his debt, and his belief that the trader has committed an act of bankruptcy, and then executes a bond to the Lord Chancellor in the sum of 200*l.*, binding himself to prove his debt, either before the commissioners or on any trial at law, should the *fiat* be contested; and also to prove that the trader has committed an act of bankruptcy, and to proceed on the *fiat*. When the affidavit and bond are delivered at the Bankrupt Office, an entry is made in an official book, called the 'Docket Book,' and the petitioning creditor is then said to have 'struck a docket' against the trader. If the petitioning creditor fails in proving the matters which he undertakes to prove by his bond, and if it appears that the *fiat* was taken out fraudulently or maliciously, the Lord Chancellor may, on the petition of the trader, examine the matter, and order satisfaction to be made to the trader; and for that purpose may assign the bond to the trader, who may sue the petitioning creditor thereon in his own name. The assignment of the bond is in such case conclusive evidence of malice against the petitioning creditor; and the injured trader may also, if he please, bring a special action for maliciously suing out the *fiat*, in which he may recover more considerable damages than the mere penalty which could alone be recovered in an action on the bond.

Before the 1 and 2 Will. IV. c. 56, s. 12, which abolished commissions, and substituted *fiats* of bankruptcy, the Lord Chancellor used, by a commission under the Great Seal, to appoint such persons as to him seemed fit, who, by virtue of the Bankrupt Acts and of the commission, had authority to dispose of the person and property of the bankrupt for the advantage of his creditors. The new Act, 1 and 2 Will. IV. c. 56, constituting the Bankruptcy Court, has substituted a simple *fiat* for the commission under the Great Seal; and accordingly, in all cases where the Lord Chancellor had formerly power to issue such commission, the Lord Chancellor, the Master of the Rolls, the Vice-Chancellor, and each Master in Chancery, acting under the appointment of the Lord Chancellor, may issue a *fiat*, authorising the petitioning creditor to prosecute his claim in the Court of Bankruptcy, or *elsewhere*, before such persons as the *fiat* shall nominate; and the persons so appointed are invested with all the power and authorities which belonged to the commissioners formerly named in commissions of bankrupt under the Great Seal.

The phrase 'or elsewhere, &c.,' in the above clause, has reference to the *fiats* issued to commissioners in the *country* districts; as to whom, sec. 14 provides that the judges on their circuits are, by the direction of the Lord Chancellor, to return to him the names of so many barristers, solicitors, and attorneys practising in the different counties as he shall require; and the *fiats* which are not directed to the Court of Bankruptcy in London shall be directed to one or more of the persons so returned, to act as commissioners of bankrupt; and the Lord Chancellor has the power of removing any such person from the list.

We shall see presently that a great portion of the jurisdiction in bankruptcy, which formerly resided solely in the Lord Chancellor, is now vested in the new Court of Bankruptcy; but that Court has no power of originally directing or issuing a *fiat*. This authority resides entirely in the several judges and masters of the Court of Chancery, not indeed as a discretionary power, but to be exercised *ex debito justitiæ*, on the application of a sufficient petitioning creditor, in the manner before mentioned. The Lord Chancellor alone has also the power of rescinding and annulling a *fiat*: his order to that effect has the same force as the *supersedeas* of a commission according to the former law.

Having explained the nature of the *fiat*, we proceed to consider the persons to whom it is directed: they are, as we have seen, first, a Commissioner of the Court of Bankruptcy, or, secondly, commissioners resident in the country. The Court derives its jurisdiction from the 1 and 2 Will. IV. c. 56, whereby the King is empowered, by letters patent under the Great Seal, to establish a Court of Judicature, to be called the Court of Bankruptcy, consisting of a 'Chief Judge,' being a sergeant or barrister-at-law of ten years' standing, and three other judges, persons of the same description, and six barristers of seven years' standing, to be called Commissioners of the Court. The Court is constituted a Court of Law and Equity, and, together with every judge and commissioner thereof, exercises all the rights and privileges of a Court of Record, as fully as the same are exercised by any of the courts or judges at Westminster.

By the 38th section, the judges and commissioners of the Court of Bankruptcy, in all matters within their jurisdiction, may take the whole or any part of the evidence, either *vivâ voce* on oath, or on affidavits, as the Court of Bankruptcy may in any case direct, or as the Lord Chancellor may, by general rule, prescribe. The functions and powers of the different component parts of the Bankrupt

Court are prescribed by the statute. Those which are vested in the commissioners concern the *ordinary administration* of the bankrupt's estate, and are the subject of our present consideration.

By the act the six commissioners are expressly invested with every power and authority that belonged to the former Commissioners under the Great Seal, provided that no single commissioner shall have power to commit a bankrupt or other person examined before him otherwise than to the custody of a messenger of the court, to be brought before a subdivision court of three commissioners, or before the Court of Review of Three Judges, within three days of such commitment. An appeal is given from the decisions of the commissioners as to points of law or equity, and the refusal or admission of evidence, in case of disputed debts, to the Court of Review of Three Judges, and a like appeal from that court to the Lord Chancellor. All the powers of the commissioners may be executed by any of the judges of the court. The oath of office of the country commissioners is required to be taken at the opening of every *fiat:* that of the Commissioners of the Bankrupt Court needs only to be taken once. The country commissioner is not a judge of record as the commissioners of the court are; but protection from malicious and vexatious actions is afforded to both descriptions of commissioners by the usual clauses applying to magistrates, authorizing them, in case of actions for acts done in the course of their duty, to tender amends to the plaintiff, and requiring the plaintiff to give a month's notice of action, to commence the action within three months of the act done, and to pay double costs in case of a nonsuit or a verdict for the defendant. The general powers vested in the commissioners principally depend on the old law consolidated in the act 6 Geo. IV., c. 16. By section 33 of that act they may, after the adjudication of bankruptcy, summon persons suspected of possessing any part of the bankrupt's estate or effects, or supposed to be indebted to the bankrupt, or capable of giving information concerning the person, trade, or dealings of the bankrupt, or concerning any act of bankruptcy committed by him, and require such persons to produce all books, papers, deeds, and documents necessary to the verification of such person's depositions, or to the full disclosure of the matters inquired into by the commissioners; and on such person's neglecting to appear, having no lawful impediment, the commissioners may, by warrant under their hands and seals, authorise such person to be arrested and brought before them. The commissioners may examine every person summoned or brought before them concerning the person, trade, dealings, or estate of the bankrupt, or concerning the act of bankruptcy, and reduce the answers to writing, which the party examined must sign; and if a person refuse to be sworn, or refuse to answer, or shall not answer lawful questions to the satisfaction of the commissioners, or refuse to sign his examination, or shall not produce books, papers, &c., in his possession, when required, and to which he shall not state an objection which shall be allowed, the commissioners may commit him to prison till he shall submit to be sworn or to answer, &c. &c.

By section 36 the commissioners may summon the bankrupt whether certificated or not; and in case he shall not come and shall have no lawful impediment, the commissioners may direct him to be apprehended and brought before them; and the commissioners, on his appearing, may examine him as to all matters touching his trade, dealings, or estate, and reduce his answers to writing, which the bankrupt is to sign; and if the bankrupt refuses, having no lawful impediment allowed by the commissioners, they may commit him, to remain till he shall submit himself to be sworn, &c. &c. They have a similar power to summon and to apprehend the wife of the bankrupt for similar purposes. The bankrupt, or any other person wilfully swearing falsely before the commissioners, shall incur the penalties of perjury, a provision which is extended to any false affirmation by a quaker. Such are the principal general powers of the commissioners, whether commissioners of the Bankrupt Court, or commissioners resident in the country. The *fiat* which gives them the particular authority to act in each individual bankruptcy, is, in cases of London bankruptcies, in this form:—

'I hereby authorise A. B., of to prosecute his complaint against B. C., of in the Court of Bankruptcy.

'Brougham, C.'

In case of a country bankruptcy it is this:—

'I hereby authorise A. B., of to prosecute his complaint against B. C., of at Liverpool, in the county of Lancashire, before E. F., G. H., and J. K., Esqs.

'John Leach, M. R.'

Upon proof being made either before the Court of Bankruptcy or the country commissioners, of the petitioning creditor's debt, the trading of the bankrupt within the meaning of the section before stated, and of an act of bankruptcy of the nature before described, the court or the commissioners in the country formally adjudge the trader to be a bankrupt. Against this adjudication the bankrupt may appeal by presenting a petition to reverse it to the Court of Review, within two calendar months from the date of the adjudication, if the trader is residing in the United Kingdom, or within three months if residing in any other part of Europe, or within one year if elsewhere; the Court of Review shall then proceed to decide on the petition, or at the option of the bankrupt, and on his finding security for costs, may direct an issue as to any question of fact affecting the validity of the commission, to be tried before the Chief Judge, or any other judge of the Court of Review. An appeal lies from this court to the Lord Chancellor on any matter of law or equity, or the refusal or admission of evidence only. The Lord Chancellor has power, under special circumstances, after any such issue tried, to order another *fiat* to issue at the instance of another creditor, and to be supported by evidence of any other debt, trading, and act of bankruptcy. If the bankrupt die subsequent to the *adjudication* of bankruptcy, the commissioners are authorised to proceed as if he were living. The commissioners are required forthwith to give notice of their adjudication in the London Gazette, and thereby to appoint two public meetings for the bankrupt to surrender his property and effects, and to conform to the provisions of the Bankrupt Act. The last of these meetings is to be on the forty-second day after the publication in the Gazette; and at the first meeting the choice of the bankrupt's assignees is to take place. The commissioners also sign a summons to the bankrupt to surrender, a disobedience of which is punishable by transportation, or by fine and imprisonment; and such surrender (unless the time be enlarged by the Lord Chancellor) must be on the forty-second day after the summons. After such surrender the commissioners are authorised to make such allowance to the bankrupt out of his estate, till he has passed his last examination, as shall be necessary for the support of himself and his family. The bankrupt, after the choice of assignees, is bound to declare upon oath all books and papers relating to his estate, to attend the assignees on reasonable notice, and assist them in making out his accounts. After his surrender he may at all times inspect his books and papers, and bring with him two persons to assist him. After he has obtained his certificate, he shall, on demand in writing, attend the assignees to settle any accounts between his estate and any debtor or creditor, or do any act necessary for getting in his estate, being paid 5*s*. per day by the assignees. The bankrupt is protected from arrest in coming to surrender, and also during the forty-two days, or any enlarged time allowed for finishing his examination.

The commissioners sign a warrant of seizure of the bankrupt's effects, which is directed to a person called the *messenger*, who is authorised to break open the house, warehouse, doors, trunks, and chests of the bankrupt, and seize his body and property; and in case there is reason to suspect that property of the bankrupt is concealed in any premises not his own, a justice of the peace is authorised to grant a search-warrant to the messenger, who is protected in the execution of it, in the same manner as in cases of stolen property concealed. The messenger is protected from vexatious actions for acts done in discharge of his duty by the clauses which are usual for the protection of constables and other similar officers in the exercise of their functions; and any obstruction offered to the messenger is a contempt of the Court of Chancery. For expenses incurred in the execution of his office before the choice of the assignees, his claim is against the petitioning creditor, and for those subsequently incurred, against the assignees.

4. *The Proof of Debts.*—Having thus shown the mode in which the trader is declared a bankrupt, and his property and effects are brought under the operation of the *fiat* for distribution among his creditors, the verification of the

creditors' debts is the next step to be considered. The commissioners, we have seen, are bound to appoint two meetings immediately upon the adjudication of bankruptcy, and at these and every other meeting (with ten days' notice in the *London Gazette*) appointed for that purpose, the creditors may prove their debts on oath. Corporate bodies may make proof by an authorised agent, creditors living at a distance by affidavit, and creditors out of England by affidavit verified by a notary public, minister, or consul; and by a special provision, the person effecting a policy of assurance on ships or goods may, though not himself beneficially interested, make proof in case of loss. All debts legally due from the bankrupt at the time of the act of bankruptcy are provable, and also all debts contracted before the issuing of the *fiat*, though subsequent to the act of bankruptcy; provided the creditor, at the time of the debt being contracted, had *no knowledge* of the act of bankruptcy. Obligees on bottomry and respondentia bonds, and the assured in policies of assurance, are entitled to *make claim* before the commissioners, and when the loss or contingency happens on which the debt depends, they may then prove the debt and receive dividends with the other creditors, notwithstanding the contingency or loss may not arise till after the issuing of the *fiat*; and all creditors having claims upon the bankrupt which depend on any contingency may, on application to the commissioners, have a value set upon the contingent claim, and be admitted to prove for the debt thus ascertained. In cases where parties have become bail or sureties for the bankrupt, and have paid the debt or a part thereof (though after the issuing of the *fiat*), if the principal creditor has proved the debt under the *fiat*, such sureties are entitled to stand in the place of the creditor as to the dividends and all rights under the commission; or where the creditor has not proved his debt, such surety may prove his demand in respect of the payment he has made, so as not to disturb former dividends of the bankrupt's estate; and this, although such surety may have become surety for the bankrupt subsequent to the act of bankruptcy, provided he had no notice thereof when he became surety. With respect to creditors to whom the bankrupt owes annuity debts, all such creditors may prove for the value of the annuity, which the commissioners are to ascertain, having regard to the original price given, and to the diminution of value from lapse of time between the granting of the annuity and the date of the *fiat*. With respect to interest on debts, the general rule is, that no interest is provable unless interest was reserved by contract, either express, or arising by implication from the usage of trade, or other circumstances attending the origination of the debt: where interest is allowed it is calculated to the date of the *fiat*. By a special provision, bills of exchange and promissory notes are expressly excepted from the general rule, and the holders of those instruments are entitled to prove for interest down to the date of the *fiat*, though interest be not reserved by the instrument.

With respect to proof of debts against the partners in a firm, the general rules are, 1st, that as a creditor of the whole firm may, if he please, sue out a separate *fiat* against any single partner or any number of partners, he may prove his debt in the same manner; 2nd, a joint creditor of the whole firm may prove against the separate estate of any one partner who is bankrupt, provided there is no partner who is solvent; but if there is a partner who is solvent, then the joint creditors cannot come into competition with the separate creditors of the partner who is bankrupt; 3rd, where there are no separate debts, the joint creditors may of course prove against the estate of the partner who is bankrupt. But for the mere purposes of assenting to or dissenting from the certificate of the bankrupt and of voting for assignees, joint creditors may prove under a separate *fiat*, and separate creditors under a joint *fiat*, without regard to the above rules.

If the whole firm become bankrupt, being indebted to an individual partner, such partner cannot prove against the joint estate in competition with the joint creditors; for as they are his own creditors also, he has no right to withdraw any part of the funds available for the payment of their debts; nor can those partners of a firm who remain solvent prove against the separate estate of a member of that firm in competition with his separate creditors, unless the joint creditors be first paid 20*s*. in the pound and interest.

There are certain classes of creditors which the legislature has peculiarly privileged. The commissioners are authorised to order that the clerks and servants of the bankrupt (which includes travellers and servants working by the piece) shall receive their wages and salary, for not exceeding six months, out of the estate of the bankrupt; and they are at liberty to prove for the excess. In certain instances the creditor has a remedy for his debt without proof. Thus, if the creditor of the bankrupt, at the time of the bankruptcy, owes him money, or if there is *mutual credit* between the creditor and the bankrupt (as, for instance, on bills or securities not yet fallen due at the time of the bankruptcy), the creditor is not bound to pay his debt to the estate and prove his counter-debt and take a dividend only with the general creditors, but one debt must be *set off* against the other by the commissioners, and the balance only can be claimed on either side. But in order to be entitled to the benefit of this set-off, the creditor must not have had any notice of the bankrupt's act of bankruptcy at the time when he gave him credit.

In certain cases, also, where the creditor has obtained a security or lien upon the bankrupt's estate, he is allowed to satisfy himself out of it, instead of being compelled to accept a mere dividend. Thus, if the creditor has obtained judgment against the bankrupt, and actually *seized* his goods under an execution, he is entitled to satisfaction out of the goods, notwithstanding the bankruptcy; but unless the goods are actually *seized* before the bankruptcy, the creditor will not obtain this preference, but must rank with the other creditors. And if the creditor's judgment is not obtained in an adverse suit, but on a voluntary warrant of attorney, he will then not be entitled to the benefit of the goods unless they are actually *sold* under the execution before the bankruptcy happens. An extent for a debt due to the crown is still more favourably regarded: for as that writ binds the goods of the bankrupt from its *teste* (that is, from the date of its issuing), and as the property in the goods does not pass from the bankrupt till the appointment of the assignees, at which time it vests in them, if the crown extent issues before the appointment of assignees, the crown obtains the property in the goods in preference to the assignees. Other crown process, such as a warrant to levy for land-tax money, obtains a preference for the crown from the time of the *seizure*, in case the assignees have not then been appointed.

A legal mortgage gives the mortgagee a right to retain the property mortgaged until his debt is satisfied, and the assignee of the bankrupt can only redeem it by paying the principal mortgage money, and all interest up to the date of the redemption; and an equitable mortgage, by mere deposit of title deeds, is in general entitled to the same preference. A *bonâ fide* pledge of personal property stands on the same footing as a mortgage of land, and can only be redeemed by the assignees on payment of the sum advanced. In order, however, to give the above effect to the securities above-mentioned, it is necessary that the creditor should have obtained them either before the act of bankruptcy, or, if obtained subsequently, that they should have been obtained at least two months before the issuing the *fiat*, and without knowledge of the prior act of bankruptcy. The situation of the landlord of a bankrupt tenant is peculiar. He has a right to distrain all goods on the premises for his rent, even though the demise itself be not made till after the act of bankruptcy. If he neglects his right of distress he must then prove, and come in with the common creditors; and, by the late act, the distress, if made subsequent to the act of bankruptcy, shall be only available for one year's rent up to the date of the *fiat*, and the landlord must prove the residue of his demand like another creditor.

5. *The Assignees, their Powers and Duties.*—The assignees in whom the estate of the bankrupt is vested in trust for the creditors, and who are charged with the collecting and distribution of it, are either, first, *chosen assignees*, or, second, *official assignees*, who are permanent officers of the Court of Bankruptcy, and are only employed in bankruptcies prosecuted in that Court.

The first description are chosen by the major part, in value, of the creditors who have proved debts to the amount of 10*l*., subject to a power of rejection on the part of the commissioners, if they are deemed unfit for the office. The first duty of the assignees is to ascertain the validity of the bankruptcy, for which purpose the petitioning creditor is bound to furnish them with all the information in his power. If they ascertain it to be defective, they may apply

to the Lord Chancellor to supersede it, which is the only mode in which they can dispute the validity of the *fiat*. The assignees are required to keep an account of all receipts and payments on account of the bankrupt, which every creditor may inspect. The commissioners may at all times summon the assignees before them, and require them to produce all books, papers, and documents relating to the bankruptcy; and, on their default without excuse, may cause the assignees to be brought before them, and on their refusing to produce such books, &c., may commit them to prison until they submit to the commissioners' order. If an assignee retain in his hands, or employ for his benefit, or knowingly permit any co-assignee to retain or employ, any sum to the amount of 100*l*., or if he neglect to invest any money in Exchequer bills when ordered by the commissioners, he shall be liable to be charged 20 per cent. on such money. Assignees resemble trustees in being separately answerable only for what each receives, and they must all join in giving a good discharge for money belonging to the bankrupt's estate. If an assignee himself become bankrupt, being indebted to the estate of which he is assignee, and if he obtain his certificate, the certificate will only have the effect of freeing his person from imprisonment; but his future property and effects remain liable for his debts as assignee. The Court of Chancery has a general jurisdiction over assignees in matters relating to the bankruptcy, and will compel the performance of their duties if neglected. One of their duties is to sell the bankrupt's property, at which sale they cannot themselves in general become purchasers by reason of their fiduciary character. The assignees are entitled to be reimbursed all necessary expenses; and if an accountant is indispensable to assist them, they are entitled to employ one. They have the right of nominating the solicitor to the bankruptcy, and of regulating his continuance or removal; and they may, with the approbation of the commissioners, appoint the bankrupt himself to manage the estate, or carry on the trade on behalf of the creditors, or to aid them in any other manner. The Court of Review have power to remove an assignee, either on his own application or on that of a creditor.

2. The *official assignees* are merchants, brokers, or accountants, or persons who are or have been engaged in trade in London or Westminster, not exceeding thirty in number, who are chosen by the Lord Chancellor to act as official assignees in all bankruptcies prosecuted in the Court of Bankruptcy, one of whom acts with the chosen assignees in every such bankruptcy, giving security for his conduct. The personal estate of the bankrupt, and the rents and proceeds of his real estate, are received by the official assignee, where not otherwise directed by the Court of Bankruptcy or the commissioners; and all stock, moneys, and securities of the bankrupt, shall be forthwith transferred and paid by the official assignee to the Bank of England, to the credit of the Accountant-General of the Court of Chancery, subject to such order for the keeping an account, or payment, investment, or delivery thereof, as the Lord Chancellor or the Court of Bankruptcy shall direct. Till the choice of the chosen assignees, the official assignee acts as sole assignee of the bankrupt. He is not to interfere with the chosen assignees as to the appointment or removal of the solicitor, or as to directing the sale of the bankrupt's estate. The Lord Chancellor may supply any vacancy in the before-mentioned number of official assignees; and the Court of Bankruptcy may, in case of the death of an official assignee appointed in any bankruptcy, appoint another from that number; and the commissioner before whom any trader is adjudged bankrupt, may order a suitable remuneration to the official assignee out of the bankrupt's estate.

6. *The vesting of the Bankrupt's Estate in the Assignees.*—The commissioners formerly executed a deed of assignment to the assignees of all the bankrupt's property; but now, by the operation of 1 and 2 Will. IV. c. 56, s. 25, 26, the whole of the bankrupt's real and personal estate and effects, whether in Great Britain, Ireland, or the colonies, becomes absolutely vested in the assignees by virtue of their appointment; and in case of any new assignee being appointed, it vests in him jointly with those before appointed; and in those cases where the deed of conveyance or assignment of the bankrupt's property would require enrolment or registration, a certificate of the appointment of assignees, under the seal of the Court of Bankruptcy, is enrolled or registered, and is evidence of the appointment in all courts or places. By the late Act passed for the abolition of fines and recoveries, 3 and 4 Will. IV. c. 74, the commissioners acting under any *fiat* may dispose, for a valuable consideration, of all lands of which the bankrupt is tenant in tail, and thereby create as large an estate as the bankrupt might have done had he not become bankrupt.

The copyhold estate of the bankrupt does not pass to the assignees by virtue of their mere appointment, but the commissioners are authorised to convey such property to any person who purchases it. The purchaser is to agree and compound with the lord of the manor wherein it is situate for the fines and services, and the lord shall at the next court grant the property to the vendee. Contingent estates and interests in real property which belong to the bankrupt pass to the assignees; but the expectancy of an heir-at-law (or possibility, as it is technically called) is not such an interest as vests in the assignees. Offices of an inheritable nature, or such as are held for a term of years, are in general saleable, and therefore pass to the assignees, provided they do not concern the administration of public justice; and as an officer on half-pay cannot sell his half-pay, so, on principles of public policy, he cannot be called on to discover or surrender it in case of his becoming a bankrupt. All the debts and choses in action due to the bankrupt vest in his assignees, who have a right to sue upon all beneficial contracts entered into with the bankrupt before his bankruptcy, and also for all torts and injuries affecting his *property*; but not for mere personal wrongs, such as assaults, slanders, libels, and the like. The right to bring a real action passes to the assignees, even though the estate may be the bankrupt's in right of his wife. If the bankrupt have lost money at play, which, by virtue of the Gaming Act (9 Anne, c. 14), is recoverable from the winner, the assignees are entitled to sue for it. The bankrupt's interest in a patent, and his right to publish a newspaper, constitute property which vests in his assignees. As the right of the bankrupt to sue at law on contracts passes to his assignees, so also does his right of suing in equity to enforce their specific performance; but in order to protect vendors who have agreed to sell real property to a trader who becomes bankrupt, the assignees are compelled (on being required) to execute the agreement or to abandon it, or, if they fail to do so, the vendor may apply by petition to the Chancellor, who will order the assignees to deliver up the agreement, or make such other order as he shall think fit. The bankrupt's personal property situated in a foreign country will pass to the assignees, unless the law of the foreign country prevent it. With respect to leases, the assignees are not bound to accept a leasehold interest belonging to the bankrupt unless they think proper; for in some cases such a property is burdened with rent and covenants beyond its value, and would prove a loss to the creditors. Such property, therefore, remains vested in the bankrupt till the assignees have done some act amounting to an acceptance, such as taking possession of it, or intermeddling with it in the capacity of owner; but a mere experiment, by putting it up to sale to ascertain its value, will not constitute an acceptance of it. If the assignees accept the lease, they become liable to the landlord for the rent and covenants, and the bankrupt is discharged from both from the date of the *fiat*. If the assignees decline the lease, the bankrupt is also discharged by the Bankrupt Acts from the rent and covenants, provided he deliver up the lease to the landlord within fourteen days from his having notice that the assignees have declined it; and if the assignees, on being required, fail to elect whether they will accept or decline the lease, the landlord may apply by petition to the Lord Chancellor, who will order them so to elect, and to deliver up the lease in case they decline it. Property which the bankrupt holds as trustee for others does not pass to his assignees, being in no way beneficial to his creditors. If the bankrupt has stock standing in his name, the commissioners may order it to be transferred into the names of the assignees. Whatever beneficial interest the bankrupt may have in property of his wife passes to his assignees; but property which she enjoys as a *sole trader* in the city of London, or which is settled to her separate use, does not fall within the operation of the bankruptcy. If the assignees are able to recover possession of the wife's property in a court of law, equity will not interfere with their legal title; but if the property is of such a nature that they are compelled to sue in a court of equity to recover it, that court will require a provision to be made for the wife out

of the fund. All property which might be redeemed by the bankrupt, may be redeemed by his assignees for the benefit of the creditors. The assignees not only take all the bankrupt's present property, but also property which may accrue to him previously to his obtaining his certificate; but they have no right to seize the profits of his personal and daily labour, for that would be to deprive him of his means of existence. In a late case, where the bankrupt, a furniture broker, was engaged to remove goods, and he employed, for that purpose, vans, packing-cases, and five or six men, it was held that his demand for this employment passed to his assignees, since it did not consist solely of a remuneration for his personal labour.

7. *Of the Effect of the Bankruptcy on the Rights of third Parties.*—The general rule is, that all the property of a bankrupt vests in his assignees for the benefit of the creditors *from the time of the act of bankruptcy;* from which it follows that all dispositions made by the bankrupt of his property between that time and the issuing of the *fiat* are void—a doctrine which occasioned much hardship in many instances to persons who had dealt with the bankrupt in ignorance of his having committed an act of bankruptcy, and which has therefore been materially mitigated and qualified by legislative provisions:—

1. It is provided that all conveyances by, and all dealings and transactions by and with, the bankrupt, made more than *two months* before the *fiat,* and all executions against the bankrupt's land or goods earlier than that time, shall be valid, provided the party dealing with the bankrupt had no notice of his prior act of bankruptcy.

2. It is provided that all payments by the bankrupt to any creditor, and all such payments made to any bankrupt, at any time before the issuing of the *fiat,* shall be valid, provided the person so dealing with the bankrupt had not, at the time of such payment, notice of his having committed an act of bankruptcy. This provision protective of payments, it will be observed, reaches up to the issuing of the *fiat;* but it only extends to *bonâ fide* payments, which are such in the strict sense of the word, and therefore it does not include a loan of a sum of money to the bankrupt on a mortgage of his property; and so, where a party lent the bankrupt his acceptance, and afterwards purchased four horses from him, agreeing that their price should be set off against the amount of the acceptance, this was held not a protected *payment* within the meaning of the act. The protection is afforded on condition that the party protected has no notice of an *act of bankruptcy* at the time of the payment. In order, however, to deprive the party of the benefit of the act, he must have notice strictly of some act of bankruptcy having been committed. Mere knowledge that the bankrupt is in *embarrassed circumstances* at the time of the payment will not prevent the payment from being protected. In one instance the bankrupt law extends the protection to a party having dealt with the bankrupt with knowledge of his having committed an act of bankruptcy: viz., where the *fiat* of bankruptcy is not sued out within twelve months of the act of bankruptcy.

When none of the above statutory exceptions and qualifications take effect, the general rule applies, with all its consequences, that the assignees are invested with the property of the bankrupt, by relation, back to the act of bankruptcy. Therefore, if a sheriff, under an execution against the bankrupt, seizes his goods without notice of his having committed an act of bankruptcy, the sheriff is liable to an action by the assignees to recover their value, provided the *fiat* issue within two months from the date of the execution. As the sheriff is compelled by law, in such a case, to levy all the goods of the bankrupt under the execution, and as he cannot in general know whether he has committed an act of bankruptcy or not, this case involves some hardship on the sheriff; and a late act therefore has, to a certain extent, protected that officer, by allowing him to apply to the Court at Westminster to call the execution-creditor and the assignees of the bankrupt before them, and to make them interplead, and try the right to the goods seized in an action between themselves. The doctrine that the *fiat,* when issued, has relation back to the act of bankruptcy, has no application against the crown; and therefore intermediate seizures by the crown of the bankrupt's goods are valid. And as a party who is sued at law by a bankrupt cannot defend himself, by showing that the bankrupt, before the action, has committed an act of bankruptcy, it follows that all payments actually enforced at law by the bankrupt, before the *fiat,* are good payments, since it would be a glaring injustice to allow the assignees to recover them a second time.

Not only is all the property to which the bankrupt himself has a right applicable towards the payment of his creditors, but there are instances in which *effects of other parties* in his custody, which could not have been retained by the bankrupt had he not become bankrupt, will vest in his assignees under the *fiat.* The principal enactment on this subject, 6 Geo. IV. c. 16, s. 72, is levelled at the mischief occasioned by allowing the use of other persons' property to be granted with impunity to a failing trader, who is thereby enabled to assume a deceitful appearance of wealth, and obtain factitious credit with the world. Accordingly, if any bankrupt, by the permission and consent of the owner, shall have in his possession, order, or disposition, any goods or chattels whereof he was reputed owner, or whereof he had taken on himself the sale or disposition as owner at the time of his bankruptcy, the commissioners may sell the same for the benefit of the creditors. The provision applies only to goods and chattels, such as ships, furniture, utensils in trade, stock, bills of exchange, &c. But interests in property of a real nature are not affected by it. The main difficulty, which has occasioned much litigation as to the cases within this clause, is in deciding whether the bankrupt was or was not the *reputed owner* of the property at the time of his bankruptcy, which is a question of fact determinable by a jury, according to the circumstances of each particular case. Where the bankrupt has once been the real owner, but has sold or disposed of the goods, the circumstance of his still remaining in possession of them raises generally a presumption that he possesses them as reputed owner; but where the bankrupt has the possession of the goods without ever having been the real owner, it will require stronger evidence to show his reputed ownership at the time of the bankruptcy. The distinctions upon the subject are some of the nicest which occur in the decisions of the courts. Where the purchaser of wines transferred them to a particular bin in the vendor's cellar, sealed it, and had an entry made in the vendor's books, it was held that these precautions prevented the wines from falling within the operation of the clause. But in a similar case, where the purchaser simply marked the goods with his initials, the decision was to the contrary. If a bond is assigned over by the obligee, it must be delivered to the party to whom it is assigned, and notice must be given to the debtor, otherwise it will pass to the assignees of the obligee in case of his bankruptcy. And it is the same as to the assignment of a policy of insurance; and a mere notice in the *London Gazette* will not be sufficient notice, unless it happens that the debtor has actually read it. Bills discounted by a banker are in effect purchased by him, and they therefore pass with the rest of his property to his assignees in the event of his bankruptcy; but bills which are not due, and are paid by a customer to his banker, though indorsed, remain the property of the customer, since the banker is a mere agent for the purpose of receiving the amount when they become due. But it is otherwise if the bills, though not due, are paid in by the customer, and treated as *cash.* Property which the bankrupt holds merely as trustee, or as executor or administrator, or as a factor, or which is placed in his hands merely for some particular purpose, will not pass to his assignees as being in his reputed ownership. Goods which a bankrupt receives on the terms of sale or return are held to be in his reputed ownership, and to pass to the assignees; but where the bankrupt had received goods the evening before his bankruptcy, and in fact never unpacked them, it was held the owner might reclaim them. If a trader have mortgaged his goods, but remain in possession of them, they will pass to the assignees; and this used to be the law with respect to the mortgage of a ship. If the owner continued to freight it, and to act as owner, it passed to his assignees, notwithstanding it was absolutely assigned to a mortgagee; but this being found a great grievance, is remedied by the last Ship Register Acts; and now, if a ship-owner mortgage his ship, the mortgagee may with safety leave him in possession of it, provided the mortgagee duly registers it according to the provisions of the 4 Geo. IV. c. 41.

8. *The Certificate and Allowance of the Bankrupt.*—When the bankrupt has duly submitted himself to examination by the commissioners, and has surrendered up his property and effects, and in other respects conformed to the requisitions of the Bankrupt Act, he becomes entitled to a certificate signed by the commissioners and cre-

ditors, operating as a discharge from the future claims of his creditors. This certificate must be signed by four-fifths in number and value of the creditors who have proved debts above 20*l.*: or after six calendar months from the last examination of the bankrupt, it must be signed either by three-fifths in number and value of such creditors, or by nine-tenths in number of such creditors. The certificate must also be signed and sealed by the commissioners after the signature by the proper number of creditors; and must certify to the Chancellor that the bankrupt has made a full discovery of his estate and effects, and has in all respects conformed to the law respecting bankrupts, and that the requisite number of creditors signed the certificate; and the bankrupt must also make oath that the certificate and consent of creditors were obtained without fraud. Any contract or security given by the bankrupt to any creditor, for securing money to him as a persuasion to sign the certificate, is wholly void. The certificate, in order to operate as a discharge to the bankrupt, must also be duly allowed by the Lord Chancellor. For this purpose, notice must be given in the Gazette that the certificate will be allowed within twenty-one days, unless cause is shown to the contrary; and in the mean time any creditor may petition against such allowance. In certain cases of misconduct by the bankrupt, the certificate becomes wholly void; as, if the bankrupt has lost in any one day 20*l.* by gambling or wagering, or 200*l* within one year next preceding his bankruptcy; or if he has, within that period, lost 200*l.* by any illegal contract for the sale and transfer of government or other stock; or if he have, after bankruptcy, or in contemplation of bankruptcy, destroyed, altered, mutilated, or falsified any of his books or papers, or been privy to the making any fraudulent entries in his books; or if he has concealed property to the amount of 10*l*; or if he was privy to the proving of any false debt under the *fiat*, without disclosing it to the assignees. A certificate has, in some very extreme cases (as for gaming), been recalled after it has been allowed. But so harsh a measure requires to be very strongly grounded.

The *effect* of the certificate is to exempt the bankrupt from the payment of all debts *which might have been proved* under the *fiat*. A debt proveable under the *fiat*, and a debt barred by the certificate, are convertible terms. The nature of these debts has been considered under a previous title. As to the manner of obtaining the exemption conferred by the Bankrupt Act, if the *bankrupt* is *arrested* for any debt proveable under the commission, he will be discharged on entering a common appearance (see BAIL), and may plead that the cause of action accrued before he became bankrupt, and the certificate and allowance thereof shall be sufficient evidence of the trading bankruptcy, and *fiat*, and other proceedings; and if any bankrupt is *taken in execution* for any such debt, any judge, on his producing his certificate, may order him to be discharged without fee. The effect of the certificate on a second bankruptcy is very materially curtailed; for if a bankrupt, after having once obtained a certificate, or having compounded with his creditors, or having been discharged under an Insolvent Act, again becomes bankrupt and obtains a certificate, unless his estate pays 15*s.* in the pound, such second certificate shall only protect his *person* from arrest; but his future estate and effects shall vest in the assignees under the second commission, who may seize the same. The bankrupt has, after obtaining his certificate, in certain cases a claim to an *allowance* out of his estate. If his estate has paid 10*s.* in the pound to his creditors, he is entitled to five per cent. out of such estate, provided the allowance does not exceed 400*l.* If the estate pays 12*s.* 6*d* in the pound, he is to be paid 7*l.* 10*s.* per cent., provided such allowance does not exceed 500*l.*; and if his estate pays 15*s.* in the pound, he is to be allowed ten per cent., provided such allowance does not exceed 600*l.* If the estate does not pay 10*s.* in the pound, he is only entitled to such allowance as the assignees think fit, not exceeding three per cent. and 300*l.* This allowance is dependent on the allowance of the certificate, and cannot be claimed previously, and it cannot be paid till a final dividend is made, since before that time its *quantum* cannot be ascertained. The bankrupt's right to it, however, is a vested interest even before the dividend, and passes to his representatives in the event of his death.

If any surplus of the bankrupt's estate remains after the creditors are paid in full, it of course belongs to the bankrupt, and the assignees are bound, on his request, to declare to the bankrupt in what manner they have disposed of his real and personal estate, and to pay the surplus, if any, to him.

The Court of Bankruptcy.—We have before seen that the Court of Bankruptcy, established by 1 and 2 Will. IV. c. 56, is composed of three judges, constituting a Court of Review, and of six commissioners, before whom *fiats* of bankruptcy are prosecuted in London, and who exercise the same functions (together with some others newly introduced) which were formerly exercised by the commissioners appointed in each bankruptcy by the commission under the Great Seal. It remains now shortly to explain the duties and office of the Court of Review. The court is composed of a chief judge, with a salary of 3000*l.* per annum, and who is a privy councillor, and of two other judges (knights) with salaries of 2000*l.* per annum. It has superintendence in all matters of bankruptcy, and jurisdiction to hear and determine all such matters of this description as were formerly brought by petition before the Lord Chancellor, and also all such other matters as are by the act, or the rules and regulations made in pursuance thereof, specially referred to this court. The proceedings before the court are by way of petition, motion, or special case, with an appeal to the Lord Chancellor in matters of law or equity; or, on the refusal or admission of evidence, such appeal to be heard by the Lord Chancellor only, and not by any other judge of the Court of Chancery. The court may direct issues as to questions of fact to be tried before any judge of the court, or before a judge of assize, and a jury to be summoned under the order of the court—a power which the court has not exercised since its institution, by the trial of any issue before one of its own judges, and very rarely by the direction of an issue before a judge of assize. The costs in the Court of Review are in the discretion of the court, and are to be taxed by one of the Masters of the Court of Chancery. All attorneys and solicitors of the courts at Westminster may be admitted and enrolled in the Court of Bankruptcy without fee, and may appear and plead before the commissioners, but not before the Court of Review, in which court suitors appear by counsel. The judges of the court, with consent of the Lord Chancellor, may make rules and orders for regulating the practice and sittings of the court, and the conduct of the officers and practitioners. A very important provision is introduced as to the disputing the adjudication of bankruptcy by the bankrupt. If the trader desires to dispute the adjudication, and presents a petition for reversal to the court within two months from the adjudication if the trader is in the United Kingdom, or within three months if elsewhere in Europe, or within one year if anywhere else, the court shall hear and decide on the petition, or at the option of the bankrupt, and on his finding security for costs shall direct an issue to try the validity of it by a jury; and if the verdict is not set aside by the court within one month after the trial, or if the adjudication shall not be set aside by the court on petition, the verdict or adjudication shall in all cases as against the bankrupt, and the petitioning creditor, and the assignee, and all persons claiming under the assignee, and all persons indebted to the bankrupt's estate, be conclusive evidence that the party was or was not a bankrupt at the date of the adjudication. The alteration introduced by this clause is highly useful and important, since the bankrupt, instead of being allowed at any distance of time to dispute the validity of the commission by an action against the assignees, is now confined to the periods above limited. The court has an official seal with which all proceedings and documents in bankruptcy requiring the seal are sealed. If any commissioner of the court shall, on hearing the proof of a debt, determine any point of law or equity, or decide on the refusal or admission of evidence, his decision may be brought before the Court of Review on appeal, and the decision of the Court of Review on the merits as to the proof of the debt shall be final, unless an appeal is lodged to the Lord Chancellor within one month. In case of the trial of an issue directed by the court, it has power of granting a new trial. In case the Lord Chancellor shall deem any matter brought before him by appeal from the Court of Review to be of sufficient difficulty and importance to require the decision of the House of Lords, or in case both parties desire such decision instead of that of the Lord Chancellor, then the Lord Chancellor or the Court of Review may direct the whole facts to be stated in form of a petition of appeal to the House of Lords, in like manner as other appeals are preferred to that House. The judges and commissioners have the power to take the whole, or any

part of the evidence in any case before them, either *vivâ voce* on oath, or on affidavit. On the granting of every *flat* the sum of 10*l*. is to be paid to the Lord Chancellor's Secretary of Bankrupts, and the sums received by him shall be paid weekly to the Bank of England to the credit of the Accountant-General of the Court of Chancery to 'the Secretary of Bankrupts' account.' The official assignee of every bankrupt is to pay to the like account the sum of 20*l*. out of the first moneys coming to his hands. The salaries of the judges are above stated; those of the commissioners are 1500*l*. per annum; each of the Lord Chancellor's Secretaries of Bankrupts, 1200*l*.; of the Registrars, 800*l*.; the Deputy-Registrars, 600*l*.; the First Clerk of the Secretary of Bankrupts, 500*l*.; the Second Clerk, 300*l*. No judge, commissioner, registrar, or deputy-registrar of the court can practise as a barrister while he holds such office. Any judge, commissioner, registrar, &c., who shall, for anything done under the act, fraudulently and wilfully demand or take any fee or sum of money other than is allowed by law, shall, on conviction, forfeit 500*l*., and be rendered incapable of holding any office under his Majesty.

(See Bacon's *Abridgment*, tit. 'Bankrupt,' 7th edit.; Deacon on *Bankruptcy*; Eden on *Bankruptcy*.)

BANKRUPT LAWS OF SCOTLAND. In the earliest records of the law of Scotland we find debtors entitled to a discharge on a judicial cession of their goods to their creditors. This proceeding, which still subsists in Scotland, we shall consider in detail under the head of INSOLVENCY; and only remark here, *first*, that it is a general remedy, and not confined to traders or any particular class of men; and *secondly*, that it is essentially an insolvent's remedy, and a discharge under it does not of itself extinguish debts remaining due. In these two respects the law of cession is obviously distinguished from the law of mercantile sequestration, and its parent, the English bankrupt law.

A bankrupt, as distinguished from an insolvent, is a debtor who has subjected himself to the operation of the bankrupt laws.* These, in England, are confined to persons in trade; but in Scotland any debtor may become a bankrupt. The important Scottish bankrupt acts are 1696, c. 5, and 54 Geo. III., c. 137, which latter is also the mercantile sequestration act. By the former of these statutes it is declared that if any debtor, under diligence by horning and caption, be either imprisoned or retire to the abbey or other privileged place, or flee or abscond for his personal security, or defend his person by force, and be afterwards found by sentence of the lords of Session to be insolvent, he shall be holden and reputed on these three grounds, viz., diligence by horning and caption and insolvency, joined with one or other of the said alternatives of imprisonment, or retiring, or flying, or absconding, or forcible defending, to be *a notour bankrupt*, and that from the time of his foresaid imprisonment, retiring, flying, absconding, or forcible defending. And by the act 54 Geo. III. c. 137, s. 1, it is declared that if any person, subject to the laws of Scotland, shall happen to be forth of that part of the united kingdom, or not liable to be imprisoned by being in the sanctuary, or by reason of privilege or personal protection, a charge of horning executed against him, together with either an execution of arrestment of any of his effects, not loosed or discharged within fifteen days after the date thereof, or an execution of poinding of any of his moveables, or a decree of adjudication of any part of his heritable estate, for payment or security of debt, shall, when joined with insolvency, be held a sufficient proof of legal bankruptcy, and equivalent to the description of notour bankruptcy given in the act 1696, c. 5; and further, every person, whether he be out of Scotland or not, whose estate shall be *sequestrated* (as after mentioned), shall in like manner be holden and deemed a notour bankrupt. The effect and operation of such bankruptcy is to make void and null all voluntary dispositions, assignations, or other deeds, granted directly or indirectly by the bankrupt, either at or after his bankruptcy, or in the space of sixty days before it, in favour of a creditor either for satisfaction or further security, in preference to his other creditors; and generally, all preferences and alienations in fraud of creditors may then be set aside, and the claims of creditors equalized.

Where the bankrupt has been concerned in trade, his property and effects may, by 54 Geo. III. c. 137, s. 15, seq. be attached and distributed among his creditors by a peculiar process called Mercantile sequestration; in setting forth the leading particulars of which we shall notice, 1. who may be sequestrated; 2. the proceedings to realize and distribute the bankrupt estate; 3. the personal protection, aliment, and discharge of the bankrupt; and 4. the jurisdiction of the Court of Session in bankruptcy.

Any person may be *sequestrated* who is a merchant or trader in Scotland, in gross or by retail, or a banker, broker, or underwriter, or a manufacturer, or artificer, and in general any person who, either by himself or as agent or factor for others, seeks his living by buying and selling, or by the workmanship of goods or commodities, or by any of the foregoing occupations, or holds a share in any such undertaking. But it is not a sufficient ground for awarding sequestration that the debtor is, 1. a holder of stock in any of the public or national funds, or of India stock, or of stock in any of the banks established by public authority, or in any insurance company against fire, or in the Forth and Clyde navigation company, or other inland navigation company, or the British fisheries; or 2. that he is a common labourer or workman for hire, unless such person is otherwise *bonâ fide* under one or other of the foregoing descriptions; nor, 3. can any landholder or tenant of land be as such sequestrated, even although he deal in cattle or grain, unless he is *bonâ fide* of the description of a trader in these articles, gaining or seeking to gain his livelihood, or a material part thereof, by dealing in cattle, not the produce of, nor grazed upon, or made use of in the labour of his farm, or in grain not produced thereon. Thus much as to the trade and occupation of the debtor. As to his *status* and condition, it is ordered that the statute be construed by all judges in the most beneficial manner for promoting the ends thereby intended, and that the same shall be holden to comprehend unmarried women and widows coming within any of the descriptions before mentioned, and also married women carrying on trade or merchandise independent of their husbands. The statute also provides, that the estates of all co-partnerships carrying on business under any of the denominations or descriptions above set forth, and not within the exceptions, may be sequestrated; but under proviso, that any partner of a company whose name does not appear as such in the books of the company, or who shall not come forward and acknowledge himself as a partner, on or before the day appointed for the examination of the bankrupt partners, or any of them, such person shall not be entitled to any of the benefits or privileges of the statute, unless he can make it appear that this omission proceeded entirely from innocent mistake or ignorance of the proceedings, or from a reasonable misconception of his liability as a partner, and shall then follow out all necessary steps, under the direction of the Court of Session, for remedying as far as possible the loss and inconvenience thence arising. No sequestration will be awarded against any one who is not a legal bankrupt, nor against any one having an estate or effects in Scotland, who at the time of the application does not either reside, or has a dwelling house or house of business there, or at least had such residence or dwelling-house, or house of business, within a year previous to the application, unless the debtor himself, or those legally authorized to act for him, concur in the application. In other cases, sequestration will be awarded on the application of the creditors, the debtor in such cases being always under legal diligence by horning and caption, and in virtue thereof, either imprisoned or retired to a sanctuary, or fled or absconded for his personal safety from such diligence, or defending his person by force; or, if he be out of Scotland at the time, or not liable to be imprisoned by reason of privilege or personal protection, his being under diligence by charge of horning, attended with arrestment executed of any part of his moveables, and not loosed or discharged within fifteen days thereafter, or with poinding executed of any part of his moveables, or decree of adjudication of any part of his heritable estate for payment or security of debt. Any person also who is within the statute may, whether diligence has been executed against him or not, make a joint application with his creditors for sequestration of his estate and effects. It thus appears, on

* Fraud was long reckoned in England an essential element in the description of a bankrupt. It was not so in Scotland, nor is it now the case in England. The Scottish name was *Dyvour*, a term the etymology of which our lawyers have not hitherto been very successful in tracing: but it seems to be derived from *devorer*, French, to consume one's substance, and if so it is synonymous with the former appellation in English law, *decoctor* or spendthrift. The attribute of folly as of fraud, however, is accidental to the character; and accordingly the most antient Scottish appellation was *Bare-man*, and the cessio bonorum was called 'the bare-man's process.' This term, indeed, conveys the generic idea without any adventitious quality.

the one hand, that the debtor himself in all cases may, and in some cases must, join in the application to obtain sequestration; and, on the other, that the application must always be supported by the creditors, one or more. It remains, therefore, here to notice the debt of the petitioning creditor or creditors. If there is but one petitioning-creditor, his debt must amount to 100*l.* sterling; if there are two, their debts must amount to 150*l.* sterling; and if three or more, their debts must amount to 200*l.* sterling: what proportion of the gross amount shall be due to each creditor, where more than one concur, is not specified, and therefore not material. In estimating the amount due, all partial payments made by the debtor must be of course deducted. The debt or debts may be either liquidated by formal vouchers, or stand upon open account; and the date of contraction may be prior to the bankrupt becoming a trader. As to the person to whom the debt is due, persons whose claims are merely contingent, or depending on an uncertain condition, cannot petition: creditors in future debts are deemed creditors *de præsenti* if they discount the interest to the time of payment; and the petitioning-creditor must be one who can maintain action for his debt in his own name, but it is not necessary that he hold the debt in his own right, and therefore a trustee, or the like, may, as such, petition.

The proceedings to *realize and distribute the bankrupt estate* begin with an application for sequestration to the Court of Session. It is at the instance of any creditor or creditors of the bankrupt duly qualified alone (except where the application is against a non-resident), or by the debtor jointly with them, and prays for sequestration of the debtor's whole estate and effects. Where it is made without concurrence of the debtor, it must be presented within four calendar months of the last step of the diligence used against him. With the application must be produced an oath of verity to the debts of the petitioning creditors, an oath of belief by them or their agent that the debtor is subject to sequestration in the capacity therein specified; and lastly, the grounds of debt, or a copy of the account signed by the party to whom it is due. The statute provides that when a petition for sequestration is presented, any other creditor may concur therein and follow forth the same, even without the consent, or after the death, of the creditor or creditors originally petitioning; and if the bankrupt shall happen to die after the petition for sequestration is presented, the proceedings shall, notwithstanding, be carried on and followed out to their conclusions, as if he were in life.

The application being made, the court pronounces the *first deliverance*, which is at once an *act* of sequestration if the bankrupt has concurred in the petition, but if not, then an order for service and citation, and also, if necessary, a warrant to recover written evidence of the diligence. The statute enacts, that the party applying for the sequestration, whether the creditors alone, or the bankrupt with concurrence of creditors, shall cause the petition of sequestration, and the first deliverance thereon, to be recorded in the general register of inhibitions, within fifteen days after the said deliverance is pronounced, and the same shall, from the date of the deliverance, be held equivalent to an inhibition, and to a citation in an adjudication against the debtor and his property for behoof of the whole creditors, in case the sequestration is finally awarded; in which case, also, all payments by the debtor to any of his creditors, after the first deliverance, shall be void and ineffectual, and no arrestment of the debtor's effects, used within sixty days prior to the first deliverance, shall give any preference; nor shall any poinding give a preference, unless it is completely executed sixty days at least before the first deliverance. If the required registration be omitted, the proceedings will be of no effect as an inhibition or as a citation in an adjudication. Where the debtor, not concurring, and lawfully cited, shall not appear at the diet of appearance, either in person or by his counsel or agent, or so appearing shall not instantly pay or produce a written discharge of the debt or debts upon which the diligence proceeded, and also pay or satisfy the debts of the petitioning or concurring creditors, or show other reasonable cause why the sequestration should not proceed further, the court will immediately award sequestration. But it is held that not only the debtor, but any creditor also may appear and oppose the sequestration; and the statute specially provides for the recall of sequestration, on cause shown either by the debtor or any of his creditors, within sixty days after its award, and also that it shall not be in the power of the bankrupt, after sequestration is awarded, to stop proceedings by paying off the debt on which the diligence and petition for sequestration proceeded. The nature and operation of the *act* of sequestration is, to sequestrate the whole estate and effects heritable and moveable, real and personal, of the debtor within the jurisdiction of the court, for the benefit of all his creditors, and the creditors are at the same time ordered to meet in terms of the statute; and this deliverance the petitioning creditor must forthwith cause to be advertised in the Edinburgh and London *Gazettes*, otherwise the whole proceedings at the meetings will be null and void. We have said that the interlocutor awarding sequestration appoints also the creditors to meet in terms of the statute: we will now advert to the creditors' right of vote. The debt on which a vote may be given may be an illiquid claim of damages, or a claim under suspension, or a prescribed debt, or on an unstamped document, or a debt purchased at an under value; and a contingent creditor may vote, except in the election of an interim factor, or trustee, or commissioners. As to the amount of the debt, there must be deducted all partial payments, unless challengeable or reducible, all counter claims admitted or instantly verified, and all dividends on bills received from other obligants before entering claim on the sequestration. No creditor is entitled to vote at the first or any after meeting who has not then or before exhibited a special oath of verity on his debt, and also the grounds or vouchers of the debt. Where a creditor is out of the United Kingdom, or incapable to give oath, in such cases the affidavit may be supplied by an oath of credulity by his doer or guardian; and agents or attorneys having commissions, either general or special, from creditors, may appear and vote in all matters wherein their constituents, if present, might have voted. As to number and value, a creditor under 20*l.* is not reckoned in number, but only in value. If a creditor above 20*l.* holds a preferable security on the sequestrated estate, then if the security covers only a part of his debt, he votes one in number, and votes in value for the unsecured balance; but if the security covers the whole debt, he has no vote either in number or value. The first meeting of the creditors after award of sequestration is to choose a *factor* or interim manager, previous to the appointment of a trustee on the bankrupt estate; but in the mean time, on cause shown by any creditor, the sheriff will direct interim custody to be taken of the bankrupt's repositories, books, and effects, and in particular cases it may be prudent to apply to the Court of Session for instant adjudication in favour of the sheriff-clerk of the county. The first meeting of creditors is, as we have said, to choose, and instruct, a factor or interim manager on the bankrupt estate. The powers of such person, when chosen, are very large, in order to execute his office, which is, however, chiefly to *preserve* the estate. He is liable in exact diligence; and any person interested may apply to the Court of Session for an account of his conduct and intromissions, and on cause shown by one-fourth of the creditors in value he will be removed. If no factor be chosen, or if his election is annulled, the interim custody of the estate devolves on the sheriff clerk. The next ordinary step is the appointment of a *trustee*, or series of trustees, at the meeting for which the bankrupt must exhibit a state of his affairs, also a rental of his lands, if any, and an inventory of his books and papers. The appointment of trustee is determined by a majority of the creditors in value, but, as in the appointment of a factor, complaint lies to the Court of Session, from whom, also, on application, the trustee must have *act* of confirmation and adjudication, in virtue of which the trustee may call for, and take into his custody, all books and papers belonging to the bankrupt estate, and take all legal steps to recover the estate. On cause shown, the trustee will be suspended or removed. One main duty incumbent on the trustee is to get the bankrupt and others examined in relation to the bankrupt affairs. This being done, meetings of the creditors are held to investigate these affairs, give directions to the trustee for recovery and disposal of the bankrupt estate, and choose three *commissioners* from among themselves to audit the trustee's accounts, to settle his commission, to concur with him in submissions and compromises, and to give him their advice and assistance in any other matter relative to the management of the bankrupt estate, but subject always to the control of general meetings of the creditors. The bankrupt estate is then, if no *composition* is offered, recovered and disposed of, and the produce divided among the creditors by *dividends*, according to the statute.

The bankrupt's *personal protection* from diligence may be obtained at the first general meeting of the creditors, or at any time between that and the period assigned for the first dividend, on application to the Court of Session by the bankrupt, with concurrence of the interim manager or trustee, and four-fifths of the creditors in number and value. The same proportion of creditors may also, at the meeting after the last diet of the bankrupt's examination, or at any after meeting called for the purpose, authorise the trustee, with consent of the commissioners, or any two of them, to grant the bankrupt a limited *allowance* for the support of himself and family till the period assigned for the second dividend. After the period assigned for the second dividend, the bankrupt, with concurrence of the trustee, and four-fifths of the creditors in number and value, may apply to the Court of Session for a *discharge*; but the application will, on cause shown by any of the creditors, be refused, or granted under conditions. A discharge, when allowed, frees the debtor from all debts previous to the date of the first deliverance on the petition for sequestration, except debts due to the crown. A discharge may also take place on a composition lawfully made, and agreed to by nine-tenths of the creditors in number and value, and confirmed by the court, in which case it is accompanied by a discharge of all debts, as at the date of the first deliverance, on payment of the composition, and also a reconveyance to him of all the sequestrated estate to be administered and realised for payment of the composition, the reversion accruing to the bankrupt.

In regard to the *jurisdiction of the Court of Session* in bankruptcy, it is to that court the application for sequestration must be made, and appeal lies in all questions among the creditors during the course of the proceedings to realize and distribute the bankrupt estate. For applications to sequestrate it is always open, the petition for sequestration being competent not only to either division of the court, but also to the lord ordinary on Bills.

The provisions of the Irish Bankruptcy Law are contained in the General Bankrupt Act, I. St. 11 and 12 Geo. III. c. 8; amended by I. St. 19 and 20 Geo. III. c. 25; and made perpetual by I. St. 36 Geo. III. c. 34.

BANKS, SIR JOSEPH, is said in some of the memoirs which have been written of him, to have been of noble Swedish extraction; one or two of them state that he was born at Revesby Abbey, in Lincolnshire, and most of them, with equal error, concur in saying that the date of his birth was Dec. 13th, 1743.

Sir Joseph's pedigree, entered at the Herald's College, begins with one Simon Banke, who, in the 7th Edward III., married the daughter and heir of ——— Caterton, of Newton in Yorkshire. By this marriage, the manor of Newton, in the wapentake of Staincliffe, afterwards called Banke Newton, came into the Banke family, and remained with it till the middle of the seventeenth century. The first who took the name of Bankes was Robert, the second son of Henry Banke, an eminent attorney at Giggleswick in Yorkshire, of the time of Elizabeth and James I.; who, in right of his wife, became possessed of the manor of Beck Hall in Giggleswick.

Sir Joseph Banks was the eighteenth in lineal descent from Simon Banke already mentioned. His great-grandfather, Joseph Banks, was M.P. first for Grimsby in the county of Lincoln, and afterwards for the borough of Totness in Devonshire; he died in 1727. His grandfather, of the same name, was high-sheriff of Lincolnshire in 1736, and for some time the representative in Parliament for Peterborough. His grandfather married Anne, the daughter and heir of William Hodgkinson, Esq., of Overton in the county of Derby, by whose will William (the second but eldest surviving son), the father of Sir Joseph Banks, took the name and arms of Hodgkinson, and enjoyed the Overton estate till he succeeded by inheritance to that of Revesby Abbey, when, under his grandfather Hodgkinson's will, he resigned it to his younger brother, who immediately took the name of Robert Banks Hodgkinson; upon whose death in 1792, without issue, the Overton estate descended to his nephew Sir Joseph Banks. Sir Joseph Banks's father, who, as has been already said, took the name of Hodgkinson, was born in 1719, and died in 1761.

Baron Cuvier, in the *Éloge* which he pronounced upon Sir Joseph Banks before the Royal Academy of Sciences at Paris, April 2, 1821, states Sir Joseph to have been born, not on Dec. 13th, the date in most of the English accounts, but on Feb. 13, 1743, in Argyle Street. The place is correct, but even this date is erroneous. Sir Joseph's baptism followed by the date of his birth, is thus entered in the parish register of St. James, Westminster: 'Feb. 26, 1743, Joseph Banks, son of William, Esq., and Sarah, born on Jan. 4th.'

Sir Everard Home, in the Hunterian Oration delivered in the theatre of the College of Surgeons, Feb. 14, 1822, informs us that the first part of young Banks's education was under a private tutor; at nine years of age he was sent to Harrow School, and was removed when thirteen to Eton. He is described, in a letter from his tutor, as being well-disposed and good-tempered, but so immoderately fond of play, that his attention could not be fixed to study. When fourteen, his tutor had, for the first time, the satisfaction of finding him reading during his hours of leisure. This sudden turn he at a later time himself explained to Sir Everard Home. One fine summer evening he had bathed in the river as usual, with other boys, but having stayed a long time in the water, he found when he came to dress himself that all his companions were gone: he was walking leisurely along a lane, the sides of which were richly enamelled with flowers; he stopped, and looking round, involuntarily exclaimed, 'How beautiful!' After some reflection, he said to himself, it is surely more natural that I should be taught to know all these productions of Nature, in preference to Greek and Latin; but the latter is my father's command, and it is my duty to obey him: I will, however, make myself acquainted with all these different plants for my own pleasure and gratification. He began immediately to teach himself botany; and, for want of more able tutors, submitted to be instructed by the women employed in culling simples, as it is termed, to supply the druggists and apothecaries' shops, paying sixpence for every material piece of information. While at home for the ensuing holidays, he found in his mother's dressing-room, to his inexpressible delight, a book in which all the plants he had met with were not only described but represented by engravings. This, which proved to be *Gerard's Herbal*, although one of the boards was lost, and several of the leaves torn out, he carried with him to school.

He left Eton-school in his eighteenth year, and was entered a gentleman commoner at Christ Church in Dec. 1760, just before he was eighteen.

His love of botany, which commenced at school, increased at the University, and there his mind warmly embraced all the other branches of natural history. His ardour for the acquirement of botanical knowledge was so great, that, finding no lectures were given on that subject, he applied to Dr. Sibthorpe, the botanical professor, for permission to procure a proper person, whose remuneration was to fall entirely upon the students who formed his class. This arrangement was acceded to, and a sufficient number of students having set down their names, he went to Cambridge, and brought back with him Mr. Israel Lyons, a botanist and astronomer. This gentleman, many years after, procured, through Mr. Banks's interest, the appointment of astronomer to the voyage towards the North Pole, under Captain Phipps, afterwards Lord Mulgrave. Mr. Banks soon made himself known in the University by his superior knowledge in natural history. 'He once told me in conversation,' says Sir Everard Home, 'that when he first went to Oxford, if he happened to come into any party of students in which they were discussing questions respecting Greek authors, some of them would call out, "Here is Banks, but he knows nothing of Greek." To this rebuke he made no reply, but said to himself, I will very soon excel you all in another kind of knowledge, in my mind of infinitely greater importance; and not long after, when any of them wanted to clear up a point of natural history, they said "We must go to Banks."'

He left Oxford in December, 1763, after having taken an honorary degree. His father had died in 1761, and he accordingly came into possession of his paternal fortune in January, 1764, when he became of age.

On May 1, 1766, he was chosen into the Royal Society, and in the summer went to Newfoundland with his friend Mr. Phipps, lieutenant in the navy, who afterwards made the voyage towards the North Pole. The object of this voyage was collecting plants. He returned to England the following winter by way of Lisbon.

It was after his return that the intimacy commenced between him and Dr. Solander, a Swedish gentleman, the pupil of Linnæus, who, visiting London with strong letters

of recommendation, had been recently appointed an assistant librarian of the British Museum.

Three or four years now elapsed before Mr. Banks again quitted England. The interval was assiduously employed on the objects of his established pursuit: his favourite relaxation was fishing. He frequently passed days, and even nights, on Whittlesea Mere, a lake in the vicinity of Revesby Abbey, and, when in London, days, and sometimes nights, upon the Thames, chiefly in company with the Earl of Sandwich, who was his neighbour in the country, and quite as ardent in the sport as himself. His intimacy with that nobleman is said to have procured for him the opportunity of gratifying his taste for maritime enterprise, which he had soon after the pleasure of finding within his reach. The commencement of a new reign, the peace of 1763, and the administration of Lord Bute (himself a lover of science), had been marked in England by public efforts to explore those parts of the ocean which were still wholly unknown, or only partially discovered. The South Sea having been visited by Captain Wallace, and the position and general character of the island of Otaheite being ascertained, this spot was determined by the English astronomers to be peculiarly well adapted for observing the transit of the planet Venus over the disc of the sun.

A representation to this effect having been made by the Royal Society to the king's government, and favourably received, the plan of a general voyage of discovery, embracing, in particular, the original object of the visit to Otaheite, was arranged, in pursuance of which the Lords of the Admiralty, at whose head was the Earl of Sandwich, commissioned the Endeavour, under the command of Captain Cook, for the projected service. Banks, by the aid of his noble friend, succeeded in his wishes. In conjunction with Dr Solander, he was appointed naturalist to the expedition, in which capacity, attended by two draughtsmen and four servants, he sailed from Plymouth Sound August 26, 1768.

On touching at Rio de Janeiro, the jealousy of the colonial government forbade their exploring the South American shores; but on arriving at Tierra del Fuego they disembarked, and, amid the rigours of the winter season in that extremity of the discovered globe, acquired a splendid variety of botanical specimens. Here, in the midst of a severe snow storm, three of their attendants perished through the intensity of the cold, and Dr Solander was so far overcome that he was saved solely by the perseverance of Mr Banks, whose powerful constitution enabled him to struggle successfully with the fatal propensity to sleep, by which, indeed, he had already been seized himself. On the 12th April, 1769, after sailing from Tierra del Fuego to Otaheite, they finally anchored on one of the coasts of that island, and here, during a space of four months devoted essentially to the astronomical objects of the visit, Mr Banks acquired an intimate knowledge of the natural history of the interior, as well as of the shores and waters of the island. Nor was it only as a naturalist that he became conspicuous at Otaheite: his commanding appearance, frank and open manners, and sound judgment, speedily obtained for him the regard and deference of the natives, among whom he was frequently the arbiter of disputes. Meanwhile his personal advantages seem to have secured to him a considerable share of admiration among the female part of the community. The wife of one of the great chiefs, and Oberea, the queen regnant of the island, treated him with so much attention as to expose him to the raillery of his companions of the voyage, and it became occasionally the subject of good-humoured satire on his return to England.

The expedition quitted Otaheite on the 15th of August, and after traversing the seas surrounding New Zealand, and New South Wales, came homeward by the way of Batavia, and reached the Downs on the 12th of June, 1771, the whole period of the voyage having occupied nearly three years. Mr. Banks was received in England with the highest marks of respect, to which he was justly entitled for the specimens which he brought, at so much risk and expense, to enrich the science of natural history. On the 10th of August, by his Majesty's express desire, Mr. Banks and Dr. Solander, accompanied by Sir John Pringle, then President of the Royal Society, attended at Richmond, where they had the honour of a private royal interview, which lasted some hours. His Majesty, at this time, conceived a liking for the young traveller, which continued unimpaired to the close of his public life.

Soon after the arrival of Mr. Banks in London, he became entangled in a dispute with the relations of one of his draughtsmen, Sydney Parkinson, who had died in the course of the voyage, having been engaged at a salary of 80*l*. per annum as natural history painter, for which he had shown considerable talent. Parkinson's friends seemed to have formed the most extravagant ideas respecting the property left by their young friend in general effects, curiosities, and drawings; and consequently they felt much disappointed, accusing Mr Banks, by implication, of having unfairly taken possession of various articles, independently of drawings, which he claimed as the work of his own draughtsman. These charges, with the whole affair of the publication of Parkinson's account of the voyage, may be found in the preface to that book; but as much of it seems the result of passion and prejudice, no further notice of it is necessary here; and, indeed, Mr Banks appears not to have considered himself as at all called on to offer any vindication of himself in the affair.

After all the privations and dangers of this voyage, it required no common strength of mind to encounter them a second time. Mr Banks, however, at the solicitation of Lord Sandwich, made this offer to government, which was accepted; and such was the expense of his outfit, and so extensive the preparations he made, that he was obliged to raise money for that purpose. He engaged Zoffany the painter, three draughtsmen, two secretaries, and nine servants, acquainted with the modes of preserving animals and plants; but finding himself thwarted by the Comptroller of the Navy in everything he proposed respecting the accommodations in the ships (the Drake and Raleigh were commissioned), he gave up in disgust, all idea of going upon a voyage in the outset of which he had received such personal ill-treatment. It was highly honourable to Mr Banks, that, although he relinquished the voyage, he exerted himself, in every way in his power, to promote the objects of it. Dr James Lind, a very able physician, had received the appointment of naturalist with a grant from parliament of 4000*l*. This gentleman, upon Mr Banks not going, declined the offer, and Dr John Reinhold Forster and his son, through the interest of Mr Banks, received it. Upon Mr Forster's return, his drawings were purchased by Mr. Banks, and placed in his library.

In expectation of being engaged in another voyage of discovery, although not in a king's ship, Mr Banks, with a view to keep his followers together, made a voyage to Iceland with his friend Dr Solander. He arrived there in August, 1772, and returned in six weeks. The Hebrides, which skirt the north-west coast of Scotland, lay near the track of the voyage, and these adventurous naturalists were induced to examine them. Among other things worthy of notice, they discovered the columnar stratification of the rocks surrounding the caves of Staffa—a phenomenon till then unobserved by naturalists—an account of which was published in the same year from Mr. Banks's *Journal*, by Mr. Pennant in his *Tour in Scotland* (pp 261-269). The volcanic mountains, the hot springs, the siliceous rocks, the plants and animals of Iceland, were all carefully surveyed in this voyage; and a rich harvest of new botanical specimens compensated for its toils and expense. But it was not to these objects alone that Mr Banks confined his inquiries: he purchased at this time a very large collection of Icelandic books and manuscripts, which he presented, in 1773, to the British Museum; and he added another collection to it in 1783.

In 1777, when Sir John Pringle retired from the Presidency of the Royal Society, the friends of that institution thought they could not promote its usefulness better than by the election of Mr Banks to the vacant chair. The honour was just such an one as a lover of scientific pursuits, who was at the same time a man of rank and fortune, might with laudable ambition desire; and it cannot be denied that, if the best judges had been required to single out the individual most qualified, in all points of view, to adorn the office and discharge its important duties, they could not easily have avoided fixing on Mr. Banks.

In the year 1778 Mr. Banks entered upon the duties of the office of President of the Royal Society, to which he immediately devoted himself with the utmost zeal. His exertions had the effect of procuring communications in the highest degree interesting and important, and of gaining an accession of persons of rank and talent to the list of members, as well as exciting the whole body to extraordinary diligence and activity. From the time of this appointment

he gave up all idea of leaving his country, and began to prepare for publication the rich store of botanical materials which he had collected

In March, 1779, Mr Banks married Dorothea, eldest daughter of William Western Hugessen, Esq of Provender, in the parish of Norton in Kent; and in 1781 was created a baronet. In 1782 he lost his friend and fellow-labourer Dr Solander, who died of an apoplectic fit This loss was a severe blow; and, in consequence of it, he gave up all intention of proceeding with his botanical work, or of writing any thing further than a few short memoirs, published either in a detached form, or as communications to the transactions of societies.

For the first three or four years of Sir Joseph Banks's Presidency of the Royal Society all went on harmoniously, but, notwithstanding the zeal and assiduity with which he devoted himself to the duties of his office, discontents began to rise against him, even amongst the most eminent members of the Society A variety of complaints, the fruit of misunderstanding and prejudice, were industriously circulated in regard to his conduct It was alleged against him that he arrogated the exclusive power of introducing new members to the Society, thus filling it with ignorant and trifling men of wealth and rank, while the inventor in art, the discoverer in science, and the teacher of knowledge were driven away with scorn It was said that his hostility to mathematical knowledge threatened to bring it into discredit and neglect in the Society, and it was as sarcastically as unjustly observed, that he possessed no scientific merits, but such as depended merely on bodily labour and the expenditure of money

At length the mutual discontents between the President and a number of the members of the Society broke out In the course of the proceedings, Dr Hutton was reduced to the necessity of resigning the office of Foreign Secretary, on learning that he had been accused of neglecting its duties He however, explained and defended his conduct, and a vote of the Society fully approved of his defence The history of this discussion is contained in the tracts which were published upon it at the time, more particularly in the *Observations on the late Contests in the Royal Society*, by Andrew Kippis, D D, F R S and S A, 8vo London, 1784 The whole collection, with some additional papers exists in one volume in Sir Joseph Banks's library in the British Museum

On the evening of the 8th of January, 1784, a resolution, 'that this Society do approve of Sir Joseph Banks for their President, and will support him,' was moved in a very full meeting of the Society by Sir Joseph's friends It was strenuously opposed by several members, and in particular by Dr Horsley afterwards Bishop of St Asaph, who, having been interrupted in a speech of considerable force and argument, and being further irritated by a suggestion from Lord Mulgrave, arose and spoke with great eloquence, intimating a threat, that if he and his friends were disrespectfully treated by Sir Joseph Banks, they might probably secede, and form a rival society 'Sir,' said Dr Horsley in conclusion, 'when the hour of secession does come, the President will be left with his train of feeble amateurs, and that toy (pointing to the mace) upon the table—the ghost of that Society in which Philosophy once reigned, and Newton presided as her minister The motion made in favour of Sir Joseph Banks was, however, carried by a great majority, and the dissension soon after subsiding, the Society returned with new zeal and unanimity to its labours

On the 1st of July, 1795, Sir Joseph Banks was invested with the order of the Bath, and on the 29th of March, 1797, sworn of his Majesty's Privy Council In 1802, he was chosen a member of the National Institute of France In replying to the letter which announced this last honour, he expressed his gratitude in terms which gave offence to many members of the Royal Society, and it also exposed him to a virulent attack from an anonymous enemy, who published the letter in question in the English papers, accompanied by a most acrimonious letter to the author This enemy was afterwards acknowledged to be Bishop Horsley, who was apparently less prompted by a reasonable and patriotic jealousy, than by antient pique, and a bitter detestation even of the science of revolutionary France.

Towards the close of life, Sir Joseph Banks, who in youth had possessed a robust constitution, was grievously afflicted by gout, so much so as in a great measure to lose the use of his lower extremities. He endured the sufferings of disease with patience and cheerfulness, and died at his house at Spring Grove, June 19, 1820, leaving no family behind him: he was buried at Heston, Middlesex. His only sister, Mrs Sophia Sarah Banks, had died in 1818. Lady Banks survived him for a few years.

All the voyages of discovery which were made under the auspices of government for the last thirty years of Sir Joseph Banks's life had either been suggested by him, or had received his approbation and support The African Association owed its origin to him, and Ledyard, Lucas, Houghton, and the unfortunate Mungo Park, all partook of the care which he extended to the enterprising traveller. He devised the means of carrying the bread-fruit to the West Indies for cultivation from Otaheite, and the mango from Bengal. He transferred the fruits of Persia and Ceylon, also, successfully, to the West Indies and to Europe The establishment of our colony at Botany Bay originated entirely with him In the affairs of the Board of Trade, of the Board of Agriculture, and of the Mint, he was constantly consulted, and he took a leading part in the management of the Royal Gardens at Kew He was a distinguished promoter also of the interests of the Horticultural Society founded in 1804 His influence was frequently directed to soften to men of science the inconveniences of the long war which followed the French Revolution, to alleviate their sufferings in captivity or to procure the restoration of their papers and collections when taken by an enemy. Baron Cuvier, in his *Eloge* upon Sir Joseph Banks, mentions that, no less than ten times, collections addressed to the Jardin du Roi at Paris and captured by the English, were restored, by his intercession, to their original destination His purse was always open to promote the cause of science, and his library of natural history always accessible to those who desired to consult it His *conversazioni* on a Sunday evening, during the sittings of the Royal Society, were attended by persons the most distinguished in literature and science, whatever was their rank in life, or country; and during the two-and forty years in which he continued President of the Royal Society, he was indefatigable as an official trustee in the management of the British Museum; to which institution after innumerable gifts, he made a contingent bequest of his scientific library, together with his foreign correspondence where both are now deposited

Sir Joseph Banks published two single tracts 1 *A short Account of the Cause of the Disease in Corn, called, by the Farmers, the Blight, the Mildew, and the Rust*, 8vo 1805, which was several times reprinted, in 1806, with additions; again, with marginal annotations by an agriculturist (Sir Thomas Hanmer, Bart) in 1807, and in 1814 2 *Circumstances relative to Merino Sheep, chiefly collected from the Spanish Shepherds*, 4to Lond 1809 This tract had been originally communicated to the Board of Agriculture. It was likewise inserted in vol xii of the *Letters and Papers of the Bath Society*, published in 1810 In the *Communications to the Board of Agriculture*, vol ii p 197, will be found his 'Account of Experiments in cultivating Rice brought by Sir John Murray from India, and in vol v. p 181, his 'Observations on Spring Wheat The following are his papers in the *Transactions of the Horticultural Society*:—Vol i p 8, 'An Attempt to ascertain the Time when the Potato (*Solanum tuberosum*) was first introduced into the United Kingdom, with some Account of the Hill Wheat of India, p 21, 'Some Hints respecting the proper Mode of inuring Tender Plants to our Climate, p 54, 'On the Revival of an obsolete Mode of managing Strawberries;' p 75, 'An Account of the Method of cultivating the American Cranberry at Spring Grove, p. 140, 'On the Horticultural Management of the Sweet or Spanish Chestnut Tree, p 147, 'On the Forcing-houses of the Romans, with a List of Fruits cultivated by them, now in our Gardens,' p 197, 'Account of a New Apple called the Spring-Grove-Codling, p 252, 'On ripening the Second Crop of Figs that grow on the New Shoots, with two smaller articles in the Appendix to the same volume, pp 4, 27. In vol ii p. 162, 'Notes relative to the first appearance of the *Aphis Lanigera*, or the Apple Tree Insect, in this Country In vol xi. of the *Linnæan Society's Transactions*, pt ii 1815, are his 'Observations on a Hunting Spider, in a paper by Dr. William Elford Leach He made a few communications, also, to the *Archæologia* of the Society of Antiquaries. These will be found in vol. x p. 70, xii p 96; xiii, p. 315, xiv. pp. 273, 275, 279; xv. p. 72, xvi. pp. 153, 340, 343; xix. 102, 109

Among his manuscripts, and that portion of his library (not scientific) which was removed after his death to Lincolnshire, is a copy of Minsheu, enriched with very copious manuscript notes; and a copy of Tusser's *Five Hundred Points of Husbandry*, prepared by himself for a new edition.

A catalogue of Sir Joseph Banks's library, compiled by Mr. Dryander (another of Linnæus's pupils), who succeeded Dr. Solander as his librarian, was published in 1800, entitled *Catalogus Bibliothecæ Historico-Naturalis Josephi Banks*, auctore Jona Dryander, A.M., Regiæ Societatis Bibliothecario, in five volumes 8vo. A limited number only was printed, and it is now a work of considerable rarity.

(See *Eloge Historique de M. Banks lu à la Séance de l'Acad. Royale des Sciences, le 2 Avril*, 1821, 4to.; *Biographie Universelle*, tom. lvii. Supplem. p. 101; Sir Everard Home's *Hunterian Oration*, Feb. 14, 1822; *Gent. Mag.*, 1771, pp. 232, 565; 1772, pp. 254, 294; 1820, pt. i. pp. 534, 637; pt. ii pp. 86-88; *New Monthly Mag.* vol. xiv. 1820, pp. 185-194; Lodge's *Portraits of Illustrious Persons;* Tilloch's *Philosoph. Mag.* vol. xiv. 1820, pp. 40-46; but nothing has been drawn from the uncandid 'Review of some leading points in the official character and proceedings of the late President of the Royal Society,' in the same volume, pp. 161-174, 241-257. To these authorities original information has been added.) The best likeness of Sir Joseph Banks, in later life, is the statue of him in the hall of the British Museum, by Francis Chantrey, Esq.

BANKS, THOMAS, one of the first sculptors of Great Britain, was born on the 22d of December, 1735, at Lambeth on Thames side. His father was land-steward to the Duke of Beaufort, and the profits of that situation enabled him to support his family in a style of high respectability, and to give his three sons a liberal education. That classical taste which Banks's works exhibit was imbibed with his early studies; and at the time when he had arrived at the age at which a profession is usually chosen, the arts of this country were enjoying such a degree of patronage, that a parent might, without incurring the charge of imprudence, permit his son to devote himself to them as a profession. Reynolds at that period was drawing a splendid revenue from the practice of the art, which he had retrieved from a barbarous state of declension. Roubilliac and Wilton exercised their talents in sculpture with distinguished success; and Kent made all the arts tributary to his fortune, under the titles of painter, sculptor, architect, and landscape-gardener. Young Banks was placed under Kent as a pupil. The profession for which his father designed him was exclusively that of an architect, but his mind had already taken its unalterable bent; sculpture was his vocation, and no traces are left of his architectural studies, except that when objects connected with that art are introduced in his bas-reliefs, they are marked with scientific precision. How long he continued with Kent we do not know. It is said that at one period, during his youth, he practised the profession of carving in wood, which is not improbable, as that art was then in great request, and, in the hands of a skilful practitioner, a means both of reputation and profit.

In 1768 the Royal Academy was established. Banks, who was then in his thirty-third year, and whose style was already formed, had little to learn from such an institution; nevertheless he became a candidate for its honours, and in 1770 was the successful competitor for the gold prize among many rivals. He exhibited, in the same year, two distinct designs of Æneas rescuing Anchises from the flames of Troy, and the fertility of his invention was evinced in his different modes of treating the same story. His reputation was greatly increased, in the ensuing year, by a group of Mercury, Argus, and Iö; and his talents had altogether made such an impression, that it was determined by the members of the Royal Academy to send him to Rome at the expense of that institution.

The time assigned by the Academy to its foreign students for study is three years, with an allowance of about 50*l.* per annum. Banks fortunately was placed, by his father's liberality and his wife's portion, above an entire dependence on the academic stipend. He gave up his small gallery and studio to his younger brother Charles, who had embraced the same profession, and, accompanied by his wife, arrived in Rome in August, 1772. At that time, Gavin Hamilton, a Scottish painter, and a gentleman by birth, was considered to stand at the head of art in Rome. Judging by his principal work, a series of designs from the *Iliad*, he must have been chiefly indebted for this high distinction to the moderate state of contemporary talent. His character as a man, however, was in the highest degree estimable: he was a general friend to artists, those especially of his own country. West, Fuseli, Wilton, and Nollekens, were among the students whose views had been promoted by his good offices, and Banks needed no other recommendation than his sketches from Homer, which he had brought with him, to secure every advantage which Hamilton's friendship could render him.

Sir Joshua Reynolds, whose admiration of Michel Angelo knew no limit, had recommended Banks to an unremitting study of the great works in the Sistine chapel; but the sculptor soon perceived that, however magnificent in themselves, there was little in these performances available for his own art. He devoted himself, therefore, with undivided zeal, to the study of those pure models of antiquity with which his genius naturally sympathized, and with which Rome abounded in a degree, both as to number and excellence, which far surpassed his expectations. The Italian artists at that time excelled our own in the process of working marble, and Banks took lessons, in that branch of his art, of Capizzoldi, a distinguished professor.

The first work which Banks exhibited in Rome was a relief in marble; the subject was, Caractacus pleading before Claudius, a performance characterized by grandeur and simplicity. It was purchased by the Marquis (now Duke) of Buckingham, and now ornaments his seat at Stowe. The second was a portrait of the Princess Sophia of Gloucester, and is still in possession of her family. These works proved with what assiduity he had pursued his studies; but that which most excited the admiration of the Roman virtuosi was a statue of Psyche with the butterfly, which exhibited such grace, symmetry, and classical elegance, that the artist was considered to have rivalled the finest of the great models which had been the objects of his imitation. The acquisition of fame, however, was attended with no corresponding profit. The English at Rome were not yet fully convinced that a countryman of their own was capable of equalling those works of antiquity which they had been taught to regard with superstitious reverence; and Banks, after a residence of seven years in Rome, during which he had been much admired and little patronized, returned to England in 1775. Here again disappointment awaited him: Nollekens and Bacon had possession of the ground, nor was his refined and poetic style likely to make way against the plain and popular performances of these established favourites. After an unsuccessful experiment of two years, he determined, therefore, to accept an invitation which had been made him by the court of Russia, and in 1784, being then in his forty-ninth year, he departed for that country. The Empress Catherine gave him a flattering reception, purchased one of his finest works, which he had brought with him, and placed it in a temple built for the purpose in her gardens at Czarscozelo. But Banks soon discovered that a taste for sculpture was yet to be formed in a semi-barbarous court, occupied solely with balls, military spectacles, and the coarsest dissipation. However, he was not quite neglected. The Empress commissioned him to make a group in stone, called the Armed Neutrality. This work he executed, and being apprehensive, perhaps, that a few more such subjects would be imposed on him, determined on making a precipitate retreat. Shortly after his arrival in Russia, he wrote to his wife and daughter, expressing his intention of finally settling there, and desiring them to make preparations for following him. They were not, therefore, a little surprised by his sudden re-appearance while they were in the midst of preparations for their journey.

Banks, during his whole career, had continual occasions for the exercise of his equanimity, and in no instance more strongly than in a circumstance which occurred soon after his return to England. He had just completed, what, perhaps, is the noblest monument of his genius, his figure of the Mourning Achilles, now in the hall of the British Institution. This statue, when sent to Somerset House for exhibition, was by accident precipitated from the car which conveyed it, and broken to pieces. The artist, who had concentrated all his powers on this work, and who had founded on it just hopes of awakening public attention, thus beheld his labours destroyed in a moment. He returned home, never mentioned the accident to his wife, or daughter, nor were they led to suspect, by any difference in his demeanour, that a misfortune had happened. He succeeded, with much difficulty, and by his brother's assistance,

in restoring the statue; and this fine performance, in which pathetic expression is united with heroic beauty, was duly appreciated by the public. Mr. Johnes of Hafod desired to have it executed in marble, and a block was purchased for that purpose, but the patron reconsidered the matter, and determined to have, in its stead, a group of Thetis dipping the infant Achilles. So far the sculptor concurred, but while he was tasking his imagination to furnish a fine ideal head of Thetis, he learned to his astonishment that his pains were unnecessary, and that the face of Mrs. Johnes was to supply his model. Her female infant, also, was to furnish the head of Achilles. As Johnes was a man of talent, this preposterous folly excites the more surprise. Banks, however, who really esteemed his employer, proceeded in his task, and, in spite of its individualities, the work was a beautiful one. Banks, during his after life, was a frequent visiter at Hafod in the summer months, but his practice of sketching and designing was never intermitted, and it was during one of those vacations that he made his beautiful composition of Thetis and her nymphs consoling Achilles. It is an oval in alto-riliêvo: the goddess and her nymphs ascend from the sea like a mist; nor has the buoyant and elastic elegance of those figures been excelled in any work either of antient or modern art. Casts of this fine performance are to be seen in the study of almost every artist. Banks was elected a member of the Royal Academy about this time, and presented to that institution a figure of a fallen giant, which is now in their council-room. This work is exquisite in its manual execution, and displays great accuracy in anatomical detail, but the acute angle formed by the body and lower limbs impairs the impression of grandeur. His next work was a monument to the daughter of Sir Brooke Boothby, a beautiful and interesting child, who died in her sixth year. In this monument, now in Ashbourne church, Derbyshire, she is represented sleeping on her bed, and the figure conveys all the touching interest excited by the sight of infant loveliness doomed to early death. The monument to Woollett, executed soon after, was an intractable subject, the difficulties of which the sculptor has not surmounted very successfully; but the composition of Shakspeare attended by Poetry and Painting gave a better scope to his genius. This work was executed for Alderman Boydell, and is now in front of the British Institution, formerly the Shakspeare Gallery. The subject did not admit of much variety of expression, but in arrangement and character it is elegant and appropriate.

An incident occurred about this time w h is somewhat singular in the life of an artist. Banks, having modelled a bust of Horne Tooke, had formed an intimacy with that gentleman, and made him frequent visits at his house at Wimbledon; when Tooke was arrested on a charge of treasonable practices, Banks also became implicated, and was summoned to an official examination by the Secretary of State. A very slight explanation was sufficient to exculpate him; nevertheless, such was the ferment of political opinion at that period, and so strong the tide of prejudice, that Banks's interests were not a little injured even by the bare suspicion which had attached to him.

The last public works on which Banks was engaged were the monuments of Sir Eyre Coote in Westminster Abbey, and those of Captains Westcott and Burgess in St. Paul's Cathedral. The former was executed for the East India Company; the two latter by order of the Committee of Taste for his Majesty's government. Banks was great in subjects purely ideal, but he failed when he attempted to apply the principles proper to that class of art to the plain realities of life. On the assumption that he was imitating the practice of the Greek artists, he has represented the two captains naked, or nearly so, an absurdity not less offensive to popular feeling, than fallacious as referring to the examples of ancient art. The Greek sculptors certainly represented those heroes naked who belonged to remote antiquity,—Hercules, Theseus, Achilles, and others, of a fabulous cast; but there is no evidence that they exhibited their distinguished contemporaries in the same manner: on the contrary, most of their works of this latter description are chiefly valuable for the fine and appropriate cast of draperies. In public monuments, of whatever magnificence, commonplace propriety should form a large ingredient; and it was by the tact with which he combined those qualities that Bacon, the contemporary of Banks, succeeded in bearing away the general suffrage, however inferior to his rival in lofty imagination and general power of intellect. It should be added, that the allegorical figures in those monuments, and a Mahratta captive in that of Sir Eyre Coote's, are finely conceived, and in every way worthy of the sculptor's reputation.

With the monument of Captain Westcott, which was finished in 1805, Banks terminated his career; he died on the 2nd of February, 1805, in his seventieth year, and was buried in Paddington churchyard. A plain tablet was erected to his memory in Westminster Abbey, with this inscription:—'In memory of Thomas Banks, Esq., R.A., sculptor, whose superior abilities in the profession added a lustre to the arts of his country, and whose character as a man reflected honour on human nature.' This epitaph may be reckoned among the few which are entitled to the praise of truth: it would be difficult to find an individual in whom there was more to admire and less to condemn.

BA'NKSIA, an Australian genus of plants belonging to the natural order *Proteaceæ*, of very remarkable habits, and forming a striking appearance in the places where it grows. It was named in compliment to Sir Joseph Banks. It consists of bushes, or, less frequently, of small trees, with their branches growing in an umbelled manner. The leaves are hard and dry, and, in young plants, always cut at the edges, but in old specimens undivided. They have a dull green colour on their upper side, and are usually white, or very pale green, on the lower. The flowers are long, narrow, tubular, coloured calyxes; without corolla, and



[Banksias.]

The plant in the foreground is the Red Banksia of King George's Sound, and the other the Yellow Banksia of the Gulf of Carpentaria, from sketches made on the spot by W. Westall, Esq.

with only four stamens lodged in their concave points. They are collected into oblong heads, often consisting of six hundred or more, closely arranged, and do not fall off when the blooming is over, but wither, become brown, and adhere to the axis of the head. Very few of them are fertile; the greater part are altogether abortive, and form a sort of coarse fibrous covering to the singular two-valved fruit, which is thick and woody, contains two black-winged seeds, and when it sheds them opens like an oyster, or any other bivalve shell.

These plants are found in sandy forest land, or on rocks, over the whole known continent of Australia, but chiefly beyond the Tropic. They are called by the colonists honeysuckle trees, and are considered, in New South Wales, as evidence of bad land; but in the Swan River colony they occupy the most fertile tracts. Many species are now cultivated in the conservatories of Europe, where they are much esteemed for their handsome foliage and singular heads of flowers. None of them appear to be of much value for timber, although they make good firewood. *B. compar* and *B. serrata* (which

last is said to grow thirty feet high, with a stem measuring a foot and a half in diameter) are the largest species which have been mentioned by travellers on the east coast. On the west coast, in Swan River colony, *B. grandis* reaches fifty feet in height, with a trunk two feet and a half in diameter.

A considerable quantity of honey is secreted by their flowers, and collected by the natives of King George's Sound, who are extremely fond of it.

BANN, a river in Ireland, which rises in the county Down, about eight miles east of the town of Newry, in the high lands near the coast. It flows in a tolerably straight course, and in a north-west direction, to Lough Neagh, which it enters near the south-western corner, and issues from the north-western part of the Lough, flowing through Lough Beg, and thence in a direction nearly north to the North Sea, which it joins about four miles north-west of Coleraine, and about seventy-five English miles, measured in a direct line from its source. [See NEAGH.]

In its course the Bann passes through the towns of Banbridge in the county Down, Portadown in Armagh, Portglenone in Antrim, and Kilrea and Coleraine in Londonderry. About three miles south of Kilrea it is joined by the river Clody. A handsome bridge was built in 1833 at Agivey, about midway between Kilrea and Coleraine, opening a communication between Londonderry and the town of Ballymoney, in the county of Antrim, where a considerable market for linen is held. The river Bann has a bar at its mouth, which makes the entrance rather difficult in rough weather; at other times, vessels of 200 tons burthen can proceed as high up the stream as the bridge at Coleraine, which separates the town from its suburbs or liberties on the western or Antrim side of the river. The approach to the town is, however, at all times somewhat difficult, owing to the great rapidity of the stream. It has been proposed to overcome this impediment by cutting a ship canal from the sea to Coleraine. The river is rendered unnavigable beyond that town by the falls which occur. Near this spot there is a valuable salmon fishery. The scenery of the surrounding country is highly romantic.

(Wakefield's *Statistical and Political Account of Ireland; Report of Commissioners appointed to determine the Boundaries of Cities and Boroughs in Ireland.*)

BANNER. Dr. Johnson, instead of a definition of this word, or a description of the thing signified by it, has given only an imperfect catalogue of its synonyms: *flag, standard, military ensign, streamer*. The etymology is uncertain, but probably *banner* is in some way connected with *ban*, a *rallying point*. A *banner* we conceive to be essentially a piece of drapery attached to the upper part of a pole or staff. This generally hangs loose, but is sometimes fixed in a slight frame-work of wood. Before, however, the idea of *banner* is complete, we must regard this simple piece of workmanship as being in some way indicative of dignity, rank, or command, or as being carried on some occasion with which ideas of dignity are connected, as in processions in time of peace, or in the field in time of war.

The size and form are but accidents. In fact, it has been made to assume all the varieties of which so simple an instrument is susceptible. When banners are displayed at the same time by persons of different ranks, the size has often borne relation to the respective rank of the parties.

The drapery of a banner is usually made of the most costly stuffs—velvet or silk—but the material most commonly used is a kind of soft silk called taffeta. Sometimes it is quite plain, and of one uniform colour. A white banner was antiently borne in the English army. One of the knights at the siege of Carlaverok, a castle in Scotland, in the wars of King Edward I., carried a plain red banner: but they were often richly ornamented with tassels and fringes, and generally there is wrought upon them some figure or device which has reference to the person, the community, or the nation by whom the banner is raised, or to the purpose or occasion of its being displayed.

Other terms by which a banner is called, are—

Standard, by which is meant the most considerable banner of an army, or the national banner when displayed in the field, or a banner set up by some prince, or other chief, as a rallying point for his friends.

Colours, the banners now borne by particular regiments.

Flag, a banner on board a ship, generally employed as a signal.

Pennant is a narrow flag with a long streaming tail, and has been adopted by all modern nations to denote the vessel which carries it to be a national vessel, or man-of-war.

Streamer is a poetic word, and seems to be used for any species of floating banners.

Ensign is a word formed on the idea of the banner displaying *insignia* which belong to a particular person, or collection of persons. It was formerly used where we now say *colours*; and the officer called an *ensign* was originally the *ensign-bearer*. It is also applied to the national colours worn by vessels over their stern.

Pennon, another mode of writing pendant.

Pensil, or *Pennoncille*, a small pennon.

Bannière-quarrée, where the drapery was square.

Guidon is now used for the little banner of a regiment.

Gonfannon is properly appropriate to the banner of the pope or of the church.

Of all these, however, the word *banner* is used by most writers and speakers as a synonym, or as a generic term, of which the other words indicate particular species. We shall therefore bring together in this article much of the information we have been able to collect on a subject to which little attention has hitherto been paid, but which is connected with all our chivalry and much of our poetry, and is not without its share of historical importance and national interest.

The military standards of the Romans were essentially different from the flags, colours, and ensigns of modern warfare. They were carvings in metal or wood; the eagle, or some other figure, elevated at the end of a tall lance or pole. The forms of them are known to us by the representations of them on medals, or the common coinage of that people. The Persian standard described by Xenophon (*Anab.* i. 10) was a golden or gilded eagle, raised on a spear or pole. We have few such representations of the military ensigns of other nations of antiquity, and nothing, it seems, which can authorise us to suppose that banners, in the sense in which the term has been here defined, were in use among them.

But we find them in use among the modern nations of Europe from a very early period. The first notice of them in English affairs is by Bede, who, when he relates the first interview which Augustine and his followers had with Ethelbert, king of Kent, says that they approached the king bearing banners on which were displayed silver crosses, and the picture of Jesus Christ, and chanting, as they went along, prayers for his welfare and that of his people. They were then living in the Isle of Thanet; and when the king had assigned them habitations in Canterbury, they entered the city in procession, carrying their little banners, chanting halleluiahs, and praying for the blessing of God on the city which received them.

Thus early were banners used in religious affairs, to the pomp and splendour of which they have lent their aid in all later times, as in Catholic countries they still continue to do.

All the monasteries in England had banners laid up in their wardrobes, to be produced on the great anniversaries, or on the anniversary of the particular saint in whose honour the church was founded. These were sometimes, as we shall see, allowed to be carried out of the monastery, and displayed in the field. At Ripon, for instance, there was the banner of St. Wilfrid; at Beverley, the banner of St. John of that town. Both these were displayed in the field at Northallerton in the reign of Stephen. We find, also, King Edward I. paying 8½*d.* a day to one of the priests of the college of Beverley for carrying in his army the banner of St. John, and 1*d.* a day while taking it back to his monastery.

Sometimes the banners of the religious not only displayed a representation or symbol of a particular saint whom they held in especial honour, but some relic of the saint composed a part of the banner. This was the case with the banner of St. Cuthbert at Durham. Of this banner there is a particular and authentic description in a very curious little volume, entitled *The Antient Rites and Monuments of the Monastical and Cathedral Church of Durham*, 1672, which we shall here transcribe:—"The prior caused a goodly and sumptuous banner to be made, with pipes of silver to be put on a staff, being five yards long, with a device to take off and on the pipes at pleasure, and to be kept in a chest in the feretory, when they were taken down, which banner was shewed and carried in the said abbey on festival and principal days. On the height of the overmost pipes was a fair pretty cross of silver, and a wand of silver, having

a fine wrought knot of silver at either end, that went underneath the banner-cloth, whereunto the banner-cloth was fastened and tied; which wand was of the thickness of a man's finger, and at either end of the said wand there was a fine silver bell. The wand was fastened by the middle to the banner-staff hard under the cross. The banner-cloth was a yard broad and five quarters deep; and the nether part of it was indented in five parts and fringed, and made fast all about with red silk and gold; and, also, the said banner-cloth was made of red velvet, on both sides most sumptuously embroidered and wrought with flowers of green silk and gold; and in the midst of the said banner-cloth was the said holy relique and corporax cloth [this was the corporas cloth with which St. Cuthbert in his lifetime had been used to cover the chalice when he said mass] inclosed and placed therein: which corporax cloth was covered over with white velvet, half a yard square every way, having a red cross of red velvet on both sides over the same holy relique, most artificially and cunningly compiled and framed, being finely fringed about the skirts and edges with fringe of red silk and gold, and three little fine silver bells fastened to the skirts of the said banner-cloth, like unto sacring bells; and being so sumptuously finished and absolutely perfected, was dedicated to holy St. Cuthbert, to the intent and purpose that the same should be presented and carried always after to any battle, as occasion should serve; and which was never carried or shewed at any battle, but, by the especial grace of God Almighty, and the mediation of holy St. Cuthbert, it brought home the victory.'—pp. 42-44. This banner was made in the year 1346, but there had been a banner of St. Cuthbert before; for in the wardrobe accompts of King Edward I. (1299-1300) there is an entry of 5*l.*, paid to William de Gretham, a monk of Durham, for his expenses in carrying it from the 3rd of July to the 24th of August, and for replacing it in the church of Durham. The fame of the banner of St. Cuthbert in securing the victory was so great, that when Wilfrid Holme, an early English writer of verse, who has left a metrical account of the insurrection in the reign of Henry VIII., called the *Pilgrimage of Grace*, speaks of various religious works or relics to which particular virtues were ascribed, he says of St. Cuthbert's banner that it 'caused the foes to flee.' When the Earl of Surry commanded an expedition into Scotland early in the reign of Henry VIII., he stopped at Durham, and when he had attended mass he agreed with the prior for St. Cuthbert's banner. This is mentioned by Hall the chronicler; Skelton the poet also alludes to the fact, and names also the banner of St. William, another northern saint, as being carried in the same army.

This banner of St. Cuthbert, after the Reformation, fell into the hands of Whittingham, who was made dean of Durham, one of the zealots of the Reformation. His wife, who was a French woman, is reported to have burnt it. (*Rites and Monuments*, &c. p. 44.)

It is not our intention to introduce in this article much respecting the use of banners in other countries; but we must remark that the *oriflamme*, of which there is frequent notice in the romances of chivalry and the authentic chronicles of the middle ages, was no other than the banner of St. Dennis, which, like this of St. Cuthbert, was borrowed from the abbey of St. Dennis near Paris, and carried in the French armies for the encouragement of the soldiery. The oriflamme was flame-coloured, without any embroidery; below, it was divided into three parts, and it was fastened to the lance by loups of green silk. When Louis le Gros had to defend France against the Emperor Henry V., he received this banner at the altar of St. Dennis with much ceremony. It was carried in the armies of St. Louis and Philip le Bel. Charles VII. had it not, the abbey of St. Dennis being then in possession of the English.

Among the Saxon kings of England there were two who were reputed saints, Edmund the Martyr and Edward the Confessor. The banners of these saints accompanied the English army, and waved over the fields where our Edwards and Henries gained their victories. The device on the banner of St. Edmund was twofold: it had a representation of Eve in the garden, and the serpent tempting her; it had also the three crowns, which were interpreted of Royalty, of Continence, and of Martyrdom. This we learn from Lydgate, a monk of Bury, where was the monastery especially founded in honour of Edmund, king and saint. The device upon the banner of St. Edward the Confessor was, no doubt, the cross and martlets as they appear carved in stone in the abbey of Westminster, where he is buried. Henry V. had also with him a banner of the Trinity, and another of the Virgin.

We probably should not err widely if we were to assert of the banners in the middle ages, that they formed a link between the military and the ecclesiastics, between the affairs of war and the sentiments and feelings of religion. Their influence would be felt on many occasions, but more particularly when Christians were engaged in war with the Saracens and other enemies of the faith. It was then the cross or the crescent. We may trace, even to these times, a connexion between military affairs and the religious sentiment through the medium of the banners carried in the army. Even in Protestant countries they are frequently blessed by a minister of religion. The pope still sends consecrated banners where he wishes success. The banners of Knights of the Garter are suspended in the Chapel of St. George at Windsor, and those of Knights of the Bath in Henry VII.'s Chapel at Westminster. The churches are still the depositaries of banners taken from the enemy, and banners hang over the tombs of military or naval men of distinction.

That which is peculiarly the national banner of England is a religious one. It was the practice of Christian nations, as well as of private persons, to place themselves under the peculiar tutelage of some one saint. England's patron saint was St. George, for what reason the antiquaries are puzzled to determine. But 'St. George for England' was a usual war-cry, and his banner was, above all, the national banner of Englishmen. The device was a plain red cross on a white ground. Whatever other banners were carried, this was always foremost in the field; and to this day the red cross forms the most conspicuous feature in the figure which the banner of England presents.

The other parts of the figure on the national banner are composed out of the crosses of Saint Andrew and Saint Patrick, the patrons of Scotland and of Ireland. Both these are what the heralds call saltier-crosses, that is crosses with the limbs extended towards the corners instead of the sides of the shield. Saint Andrew's Cross was white upon a blue ground. Soon after King James VI. became king of England, he directed that this cross should be united with the cross of Saint George in the national ensign. This formed what was called the *Union-Flag*. To this, on the union with Ireland in 1800, the cross of Saint Patrick was added. This was red upon a white ground. This did not unite with the other two so well as the cross of Saint Andrew had united with that of Saint George.

The *Lions* of England are the personal achievement of our Kings. There is reason to believe, that from the time of Richard I., beyond whose reign they can hardly be traced, there was a banner, bearing the lions, always carried near the person of the king when he was engaged in war. It seems also, that other devices which were favourite cognizances of kings of England were depicted in banners as well as carved upon the buildings erected by them, or placed in the windows. Thus, Edward IV. had a banner with the white rose of the House of York. Henry VII., after the battle of Bosworth, offered in the church of Saint Paul, at London, three banners, one of Saint George, one which had a dun cow for its device, and the third exhibiting a red fiery dragon, an ensign which had reference to his descent from the princes of Wales.

In thus carrying their own personal banners into the field, the king was imitated by the earls and other persons of distinction who were in the English armies. In the feudal times, the armies were composed for the most part of bodies of men brought up by the great tenants-in-chief of the Crown, and led by that chief himself who was bound to personal service, as well as to furnish a certain quota of men. [See ARMY.] These persons brought banners of their own, on which were depicted the heraldic insignia of their houses. This was no doubt an affair gratifying to the passion for distinction; but it was a matter of prudence, if not of necessity also. Heraldry was in those days, far more than at present, a necessary art,—a dumb language. When the figure was so completely cased in steel, and the face covered by the face-plate, there was scarcely the possibility of distinguishing one knight from another of the same height and general appearance. But, the escallop-shells showed who were Dacres; the water-budgets, Rooses; the chevrons, Clares; and the white lion on the red field, Mowbrays, with as much certainty as if the very names

themselves were painted on the shields, embroidered on the surcoats, or displayed upon the banners. The young Earl of Gloucester, grandson of King Edward I., was slain in Scotland by persons who would gladly have saved his life had they known who he was; but as the chronicler who relates the fact observes, he had not his armorial insignia with him.

The consequence of all this was, that besides the national banner, the banner of the King, and the banners brought by men of religion, there were in the English army, in the times of chivalry, a great number of lesser banners by which particular portions of the army were distinguished, and which served to show, as we should now say, the position in the field of the company to which each soldier belonged. This must have added greatly to the picturesque appearance of an army, which has not escaped painters and poets. References to this custom are numerous in the writers who in any way touch upon the military transactions of the middle ages. When, in the reign of King Richard II., there was a question in the Court of Chivalry contested very tenaciously and at immense expense, between Sir Richard Scrope and Sir Robert Grosvenor, respecting the right to the heraldic figure of a golden bend upon an azure field, the depositions in which suit have lately been published from the original roll in the Tower, the evidence on both sides consisted very much of the testimony of persons who said that they had seen the ancestors of one or other of the claimants exhibiting in fields of war on their shields or banners the figure in question, or had heard of it from their fathers. In the present day there is reference to the practice, when a family assert a right to coat-armour, independently of any grant from any Earl Marshal of England. The plea is, that an ancestor bore it in a field of war; which is held to be a good and sufficient plea; and it only remains to prove a male descent from such ancestor. But the most complete exhibition of this interesting custom of our ancestors is presented in a French poem of the reign of King Edward I., relating to the siege of the Castle of Carlaverok in the wars of that prince. Besides the particulars of the siege, there is given a catalogue of the chiefs who were present, which may rival in extent and minuteness the catalogue of the chiefs who went to the siege of Troy. The author touches slightly on the character of each; but he gives in good technical terms a description of the heraldic device which each displayed on his banner. A short extract will show the way in which he proceeds:

'He had for a companion a jolly and smart bachelor, well versed in love and arms, named John Paignel, who bore on a green banner a maunch painted, of fine gold.

'The good Edmund Deincourt not being able to attend himself, sent his two brave sons in his stead, with his banner of arms billetted of gold and surcharged with a dancette.

'John le Fitz Marmaduc, esteemed by princes and dukes, and all other persons acquainted with him: on his banner was the resemblance of a fess and three popinjays, distinguished by white and red.

'And Maurice de Berkelee, who was present at this expedition, had a banner red as blood, with crosslets and a white chevron, with a label of azure, because his father was living.

'But Alexander de Bailleol, ever attentive to do good, had a white banner and shield, with a red shield voided.'

Thus the poet and herald goes through the entire host, presenting us with a view, nearly complete, of the whole chivalry of England as it stood in the reign of King Edward I.

When the English army ceased to be made up of contributions from the feudal tenants, the private banner would disappear; and only the national, the regal, or the religious banner be unfurled. But in the army of the Parliament the private banner again made its appearance. Sometimes it was decorated, as in earlier periods, with the armorial insignia of the captain who displayed it. But in general the devices partook more of the character of the impresses which had come into fashion in the reign of Elizabeth, by which some moral sentiment was sought to be expressed. Thus Captain Thomas Saint Nicholas, of Kent, had a scroll on which was written, *Dabitur victoria Sanctis.* Captain Copley displayed a banner, on which was wrought the figure of an armed knight on a bay charger, with the words, *Why? but as a Captain of the Lord of Hosts am* [illegible] A contemporary has left an account of these [illegible] It is a curious picture of the spirit of the times. It is printed in the work known by the title of *Sir John Prestwich's Res Publica.*

Banners with inscriptions, or intelligible devices, afford so ready a means of diffusing a sentiment or feeling among a multitude, that they have been used in all popular insurrections. The five wounds, the crucifix, and other devices of the same class, were exhibited on banners in the insurrections in favour of the Old Religion. And in indictments for treasons in the middle ages, there is scarcely one which does not enumerate among the overt acts, that the party had marched with banners displayed.

The early sovereigns of England are represented on their seals, the most authentic representations which we have of them, as knights on horseback bearing little banners. But it appears, by the illuminations of early manuscripts, that distinguished persons were attended by one who carried his banner; and this was, no doubt, from the beginning the usual practice. In later times it was certainly so. In 1361 King Edward III. granted two hundred marks annual fee to Sir Guy de Bryan, as a reward for having borne his banner discreetly at the siege of Calais. Lord Boteler, of Sudeley, in the reign of Henry VI., had a grant of one hundred pounds annual fee, as due to his office of bannerer. This was probably the same office with that which was called the Standard-Bearer of England, which was held in the reign of King Henry VIII. by Sir Anthony Browne, Knight of the Garter and Master of the Horse. Inferior persons who were allowed to bear a banner in the field had also their banner-bearers.

The standard which was in use in the 11th and 12th centuries was too large to be wielded by any one hand. The French antiquaries have traced it to Italy, and describe it thus:—The drapery floated from near the top of a mast or tall tree, which was fixed in a scaffold resting on a car drawn by oxen. The oxen were covered with housings of skin, adorned with devices and cyphers of the reigning prince. At the foot of the tree a priest celebrated mass every day; while ten knights, attended by as many trumpets, kept watch upon the scaffold night and day. Such an inconvenient machine was in use in the English armies; and at the battle in the reign of Stephen, called the Battle of the Standard, one of this kind was in the field. The pole was the mast of a vessel, and it was decorated with various religious symbols, and with the banners of Saint Peter, Saint John of Beverley, and Saint Wilfrid.

The chief use of the standard and of other banners in military affairs must in all times have been to serve as a *rallying point* to soldiers of whatever class who composed the army. But they constituted, in the middle ages, as now, the telegraphic language of war. A banner hung out from a besieged fortress was as much a sign that a parley was desired in the reign of King Edward I. as now. When a fortress was taken, the banners of England were placed in some conspicuous part of it. Vessels at sea displayed then, as now, the national or the royal banner, and sometimes the banner of its commander. A herald, when sent off an embassy, carried a banner of the prince whom he served; and the drapery of a trumpet was in early times, as now, the pennon-quarrée of a banner.

In all pageants, banners have aided the splendour of the scene: at tournaments, at coronations, or funerals, banners were exhibited in great profusion.

Corporations also had their banners, and the several trading companies, who still keep them. The author of *The Rites and Ceremonies of the Church of Durham* says that, on Corpus Christi Day, 'the bailiff of the town did stand in the tolbooth, and did call all the occupations that were inhabitant within the town, every occupation in its degree, to bring forth their banners, with all their lights appertaining to their several banners, and to repair to the Abbey Church door. Every banner did stand a-row in its degree from the Abbey Church door to Windisholl-gate; on the west side of the way did all the banners stand, and on the east side of the way all the torches stood pertaining to the said banners,' p. 162. The further use of them on that day is described by Naogeorgus:

> In villages, the husbandmen about their corn do ride,
> With many crosses, banners, and Sir John, their priest, beside;
> Who, in a bag about his neck doth bear the blessed bread,
> And often times he down alights, and Gospel loud doth read.
> This surely keeps the corn from wind and rain, and from the blast,
> Such faith the Pope hath taught, and yet the Papists hold it fast.

When the drapery of the banner was allowed to float in

the air, it was usually either square, or extended out to a considerable length, and divided at the extremity, so as to form what is called the swallow-tailed banner. The banner of William Rufus was of this form; that of his father has the appearance of being three shreds, each attached singly to the pole.

(We refer, for other particulars, to Sir Samuel Meyrick's work on *Antient Armour*; and to a paper in the *Retrospective Review*, new series, vol. i. p. 90-117, to which we have been indebted for several facts. The *Roll of Carlaverok*, which, better than any other single piece, illustrates this subject of banners, was translated and published with many useful notes by Sir Harris Nicolas.)

BANNERET, an English name of dignity, now nearly if not entirely extinct. It denoted a degree which was above that expressed by the word *miles* or *knight*, and below that expressed by the word *baro* or *baron*. Milles, speaking of English dignities, says that the banneret was the last among the greatest and the first of the second rank. Many writs of the early kings of England run to the earls, barons, bannerets, and knights. When the order of baronet was instituted, an order with which we must be careful not to confound the banneret, precedence was given to the baronet above all bannerets, except those who were made in the field, under the banner, the king being present.

This clause in the baronet's patent brings before us one mode in which the banneret was created. He was a knight so created in the field, and it is believed that this honour was conferred usually as a reward for some particular service. Thus, in the fifteenth of King Edward III., John de Copeland was made a banneret for his service in taking David Bruce, King of Scotland, at the battle of Durham. John Chandos, a name which continually occurs in the history of the wars of the Black Prince, and who performed many signal acts of valour, was created a banneret by the Black Prince and Don Pedro of Castile. It is in the reign of Edward III. that we hear most of the dignity of banneret. Reginald de Cobham and William de la Pole were by him created bannerets. In this last instance the creation was not in the field, nor for military services, for De la Pole was a merchant of Hull, and his services consisted in supplying the king with money for his continental expeditions. We have therefore here an instance of a second mode by which a banneret might be created, that is, by patent-grant from the king. Milles mentions a third mode, which prevailed also on the continent. When the king intended to create a banneret, the person about to receive the dignity presented the sovereign with a swallow-tailed banner rolled round the staff; the king unrolled it, and, cutting off the ends, delivered it a *bannière quarrée* to the new banneret, who was thenceforth entitled to use the banner of higher dignity. Sometimes the grant of the dignity was followed by the grant of means by which to support it. This was the case with some of those above-mentioned. De la Pole received a munificent gift, the manor of Burstwick, in Holderness, and 500 marks, annual fee, issuing out of the port of Hull. (Dugdale's *Baronage*, vol. ii. p. 183.)

The rank of the banneret is well understood, but what particular privilege he enjoyed above other knights is not now known. It was a personal honour; and yet in De la Pole's patent it is expressed that the grant was made to him to enable him and his heirs the better to support his dignity. But the patent was perhaps irregular, as it seems to have been surrendered. No catalogue has been formed of persons admitted into this order, and it is presumed that they were few. The institution of the order of baronets probably contributed greatly to the abolition of the banneret. The knights of the Order of the Bath in modern times approach nearest to the bannerets of former days. In the civil wars, Captain John Smith, who rescued the king's standard at the battle of Edgehill, is said to have been created a banneret. When King George III. intended to proceed to the Nore, in 1797, to visit Lord Duncan's fleet, it was rumoured that he designed to create several of the officers bannerets. The weather was unfavourable, and the king returned without reaching the fleet; but the dignity which he conferred on Captain, now Sir Henry Trollope, in whose vessel he sailed, was understood to be that of a knight banneret.

It remains to be observed that the French antiquaries since Pasquier have represented the banneret as having been so called as being a knight entitled to bear a banner in the field; or, in other words, a knight whose quota of men to be furnished to the king's army for the lands he held of him were of that number (it is uncertain what) which constituted of itself a body of men sufficient to have their own leader. In England it is believed there were few tenants bringing any considerable number of men who were not of the rank of the *barones*.

BANNOCKBURN, a village in the parish of St. Ninian's, county of Stirling, about three miles S.S.E. of Stirling, and on both sides, but principally on the east side, of a small rivulet of the same name, which runs into the Forth below Stirling. The village has of late years become one of the most thriving and industrious in Scotland. The inhabitants are chiefly engaged in the manufacture of tartan cloths, carpets, and other woollen articles. Bannockburn also manufactures a considerable quantity of leather. It has two annual fairs, which are well attended by the population of the surrounding district.

It was here that the great battle, so well known both in Scotch and English history, was fought on Monday the 24th of July, 1314, between Edward II. and King Robert Bruce, by which the independence of Scotland was established. Bruce learned that the English king had reached Berwick with an army of more than 100,000 men, accompanied by a vast train of waggons loaded with all kinds of provisions; and aware that his intention was to advance immediately to relieve Stirling Castle (which, after a gallant resistance by the English, in whose possession it had been for a considerable period, was, by a treaty with the governor, promised to be surrendered within a limited time, if no succour arrived), he determined to intercept him on his march, and give him battle. With this view, he selected a field near Stirling, which was then called New Park. His army did not amount to 40,000 men, and being badly provided with cavalry he determined to fight on foot, and by strengthening his position endeavour to obviate the disadvantage. His right wing rested on the rivulet called Bannockburn, whose steep and wooded banks afforded him an excellent security against being outflanked. His front extended to the village of St. Ninians, and his left wing, which was unprotected by the nature of the ground, was exposed to the garrison of Stirling in the rear; but the terms of the treaty with the governor, and the honour of knighthood, precluded all attack from that quarter. In order to weaken the force of the English cavalry, he caused pits to be dug, in which were inserted sharp-pointed stakes, covered over with turf and rushes. On the 23d, which was Sunday, intelligence reached Bruce of the near approach of the English army, and he then addressed his men, requesting all who were afraid or unwilling to fight to retire, but he was answered with loud acclamations expressive of their determination to abide the coming contest. The baggage was left in a valley in the rear of the army, guarded by the sutlers, waggon-boys, and other followers of the camp, having the hill, still known by the name of Gilles, or Gillies, between. Previously to the approach of the main body of the English army, a troop of 800 cavalry had been sent forward with the view of endeavouring to throw themselves into Stirling Castle, and take the Scotch in the rear. Bruce detected this manœuvre, and detached a body of 500 infantry to defeat it. A desperate conflict ensued: the infantry, being formed into a square, sustained the onslaught of the cavalry with cool determination. In the meantime, the vanguard of the English army arrived; and Sir Henry Bohun, or Boone, recognising Bruce among a body of his nobles, spurred beyond his companions to engage him in single combat. The Scottish king, though distinguished by his dress, was meanly mounted, riding on a palfrey, while the English knight rode a spirited war-horse; but Bruce, forgetting for the moment his duty as a general in the chivalric feeling, boldly advanced, and parrying the thrust of the knight's spear, cleft his helmet, and cut his head in two. The English, on seeing this specimen of personal prowess, and hearing the shouts of the Scots, retreated; and shortly afterwards, the cavalry which had endeavoured to reach the castle were foiled in all their efforts, and repulsed with considerable slaughter.

At the dawn of the following day, the whole English army advanced to meet the Scots. The battle was long and desperate. The Earl of Gloucester, the nephew of the king of England, mounted on a spirited horse which he had received as a present from his uncle, rushed impetuously forward to rally a portion of the troops which were beginning to get into confusion; but he was unhorsed, and fell covered

with wounds. The English cavalry being now in complete disorder, were totally routed by Sir James Graham, who commanded the very small portion of Scottish horse which were of service. At this critical moment, the sutlers, waggon-boys, and others who had been left with the baggage, led by curiosity, appeared on the top of Gillies' Hill, to see the progress of the combat. The English imagined them to be another Scotch army, and Bruce perceiving at once the panic and its cause, pressed more furiously on his opponents, who now gave way in every direction. Edward fled with 500 horse, and was hotly pursued by 60 horsemen under Douglas, who was eager to make him a prisoner. In the pursuit, Douglas fell in with an English knight and 20 horsemen, who instantly changed sides, and instead of following their master joined in the pursuit. The panic must have been great which could have made so large a force fly before so small a body. The English king probably believed that the whole Scotch army was close behind. At Linlithgow, where Edward halted for a short space, Douglas did not venture to attack him; but when they moved on he still pursued to the very gates of Dunbar Castle, a distance of more than sixty miles from the field of battle. From Dunbar Edward proceeded by sea to Berwick.

On the day after the battle, Stirling Castle surrendered, and many of the English who had taken shelter under its walls were made prisoners. The conduct of Bruce, in dismissing several prisoners of rank without ransom, and in paying respect to the remains of such noblemen as fell in the battle, has been highly commended, especially when contrasted with the treatment which the body of his brother, Edward Bruce, subsequently experienced.

The numbers which fell on both sides in this great battle are variously estimated. Some of the Scotch historians computed the loss of the English at 50,000. This, however, includes those who were killed in the flight. The lowest computation of the English historians gives the numbers who fell on their side at 154 lords and knights, 700 gentlemen, and 10,000 common soldiers. The Scots admit that they lost 4000 men on the occasion.

This great battle not only secured the independence of Scotland, but established the family of Bruce on its throne. Availing himself of the advantages which so glorious and decisive a victory gave him, he marched directly into England, and plundered, without resistance, the northern counties. He besieged the town of Carlisle, and took Berwick, though then a place of great strength, by assault. In exchange for some of his noble prisoners, he received his wife, his daughter, and several Scotch noblemen and gentlemen of distinction, who had been imprisoned by the English since the time of Edward I. For the liberty of his other noble prisoners, Bruce received very large sums from the English. By this victory, the Scots are said to have been enriched to the extent of 200,000*l.*

Bannockburn is also celebrated in Scottish history as the place at which James III. was defeated, in an engagement with his rebellious subjects. In attempting to escape after his troops had been vanquished, the unfortunate king fell from his horse, and was so seriously injured, that he was carried to a neighbouring mill, where he was soon after assassinated by a priest, whom he had sent for to receive his confession, and afford him spiritual consolation.

The population of the village of Bannockburn is returned with that of the parish, which in 1831 was 9552. The place is 29 miles W.N.W. from Edinburgh.

(Hume's *History of England*; Henry's *History of Great Britain*; Hailes's *Annals of Scotland*; Tytler's *History of Scotland*.)

BANQUETTE, whether single or double, in fortification, is a kind of step made in the rampart of a work near the parapet, for troops to stand upon in order to fire over the parapet. It is generally three feet high when double, and one foot and a half when single; and about three feet broad; and four feet and a half lower than the parapet. (See *Dict. Militaire*, par M. Aubert de la Chesnaye, 8vo. Dresd. 1751, tom. i. col. 201; and Jamieson's *Military Dict.*) *The Military Dictionary*, 12mo. Lond. 1708, says, 'they usually make two or three of them under the parapets of little forts and redoubts.'

BANTAM, one of the nineteen districts or regencies into which the island of Java has been divided by the Dutch, is situated at the western extremity of the island; it lies principally between 6° and 7° S. lat., and 105° and 106° E. long., and is separated from the south-eastern extremity of Sumatra by the Straits of Sunda. The district is washed on three sides by the sea, and on the east is bounded by the district of Batavia.

The Portuguese, when they first visited Java, in 1511, are said to have found the kingdom of Bantam under Hindu government; but at the time of the settlement of the Dutch at Batavia, in 1620, Bantam was under the sway of a Mohammedan sultan, and so continued until 1813, when the sultan voluntarily made over all his rights to the British government, which in return settled on him an annual pension of 10,000 dollars. For a long time previous to the conquest of Java by the English from the Dutch, the sultan of Bantam was tributary to the Dutch East India Company and paid to it every year 37,500 pounds weight of pepper, besides engaging not to allow any pepper or other produce of his kingdom to be sold to any one but the Dutch residents, and at stipulated prices. As another proof of the subjection in which the nominal kingdom of Bantam was then held by the European settlers, it may be mentioned that the Dutch East India Company claimed and exercised the right of nominating from out of the royal family the person who should succeed to the throne. An insurrection took place within the kingdom in 1808, on which occasion the Dutch government interfered, deposed the reigning sultan, and banished him to Amboyna, raising another of his family to fill his place. The Dutch authorities also made this disturbance a pretext for assuming the direct government of the low districts, confining the power of the new sultan to the high country.

The English East India Company entered into trading relations with the sultan of Bantam in 1601, and settled a factory in his dominions in 1609; this they raised into a presidency in 1634. In the following year the sultan, who had suffered severely from his territory having been made the scene of hostilities between the rival mercantile settlers from Holland and England, destroyed all the pepper vines in his dominions, conceiving that he should thus be rid of his troublesome neighbours, whose only object then appeared to be the monopolizing of pepper. The English company's factory was taken from them by the Dutch in 1682, and was afterwards virtually yielded to the Dutch, with all other British possessions in this part, by Charles II., under a treaty by which he obtained 100,000*l.* as compensation for these cessions.

Since the restoration of Java to the Dutch by the English, in 1816, under the provisions of the Treaty of Paris, the town of Ceram, which is situated about seven miles inland from the town of Bantam, has been adopted as the residence of the European officers of the district. This change was made in consequence of the greater salubrity of the air, occasioned by the more elevated position of the town. The only other town besides the two just named, in the district of Bantam, is Anjer, which is situated in the straits of Sunda, through which vessels pass on their way to or from the northern coast of Java, and the western parts of India. A strong current sets through this strait, but it varies in its direction with the east and west monsoons. The first of these begins in April or May, and lasts till the end of September or the beginning of October; and the west monsoon occurs during the remaining months of the year: for a short period at the end of each monsoon the winds are variable. Many ships, in passing through the strait, stop at the port of Anjer to take in water. This circumstance, and the facility of communication which it offers with the opposite coast of Sumatra, have induced the Dutch to form an establishment at Anjer: it is besides usual for vessels bound from ports in Europe to Batavia to put into this port in order to land their despatches, which are conveyed by land to the capital in a shorter time than ships can get round to the northern coast.

The district contains 953 villages; and in 1814, when a census was taken by the English government, had a population of 231,604 persons, of whom 626 were Chinese; since the time here mentioned the number of inhabitants is said to have greatly increased: the area of the district is 3428 [illegible] miles.

At the time of the cession of his kingdom by the sultan to the English, a settlement was made with each cultivator in possession of lands, as to the amount of rent which he should pay to the government; and the same principle was used in this arrangement as that on which the Ryotwary settlements have been made in India. When the island was restored to the Dutch, in 1816, a stipulation was made

for the observance of this settlement. It is doubtless owing to this circumstance that the district has since been constantly improving. The cultivators being sure of enjoying a certain portion of their produce, their industry has been stimulated, larger tracts of land have been brought under cultivation, and by this means, in conjunction with the constantly-increasing population, the land revenue of the district, which in 1818 was 121,380 guilders (11,970*l.* sterling), was increased in 1822 to 186,761 guilders (16,980*l.* sterling), and has since been still further augmented.

The cultivation of rice forms the principal occupation of the district. Next in importance to this is the breeding and rearing of cattle. The buffaloes of Bantam are of great size and strength, and are used for purposes of draught and tillage, as well as for food. Large flocks of goats are likewise reared in the district, and find a ready market at Batavia, where the Malay inhabitants prefer their flesh to that of sheep.

Coarse cotton cloths and a kind of ginghams are made in this district, which are in much request among the natives of the island generally, and form an important object of inland commerce. Great numbers of cane and bamboo mats are likewise made and exported to different places in the eastern archipelago and to Europe.

The coasts and their neighbourhood are, for the most part, level; but inland the country is mountainous, and everywhere exhibits marks of fertility, the mountains being covered with the finest verdure to their summits.

(Stavorinus's *Voyages*; Raffles's *History of Java*; Crawfurd's *Indian Archipelago*; Count Hogendorp's *Coup d'Œil sur l'Isle de Java*, Bruxelles, 1830.)

BANTAM, a city of Java, lying at the bottom of a bay on the northern coast of that island, about fifteen miles to the eastward of the Straits of Sunda, and sixty-one miles west of Batavia. A small river runs through the town; and two others wash its walls. This place was first visited by the Portuguese, in 1511. At the time of the arrival of the Portuguese, a great trade was carried on at Bantam, with Arabia, Hindustan, and China, in pepper, which is the chief produce of the country. Of this trade the Portuguese enjoyed a monopoly, till the arrival of the Dutch, in 1595, when, having assisted the Sultan in expelling the Portuguese, they obtained permission to build a fort, and ultimately succeeded in controlling the whole of the pepper trade: even the king himself, though permitted to retain the show of sovereignty and keep up a body of native troops, with some small armed vessels, found himself a prisoner in their hands. His subjects being obliged to sell him, at a low rate, all the pepper which they raised, the Dutch bound him down by contract to deliver it to them at a small advance, and much under the marketable value. In 1602 the English, who had arrived for the first time in the year preceding, established a factory at Bantam, but found all their commercial attempts obstructed by the Dutch. In July, 1619, it was agreed between the two nations, by treaty, that the pepper trade should be equally divided between them: a compact which was never fulfilled by the Dutch, whose naval force gave them so great an advantage in these seas. After a series of annoyances, they entirely expelled the English, and built a strong fort, called Fort Spielwick, completely commanding the town, where they remained without a rival.

Bantam was the great rendezvous for European shipping, and became the mart whence not only pepper, but other spices, were distributed over the world, and the town consequently flourished greatly. But the Dutch having transferred their seat of government to Batavia, the place was reduced to a poor remnant of its former opulence and importance. Other circumstances likewise contributed to its decline; the coral knowls increased so that the port was no longer accessible to large vessels, and the bay itself became choked up from the deposition of its rivers, which prevented any landing, except in small canoes. A dreadful fire also broke out, and destroyed most of the houses, which have never since been rebuilt.

The Dutch always maintained a garrison in the fort, which, after the fall of Batavia, in 1811, surrendered without resistance. It was restored to Holland in 1816 under the arrangements consequent on the peace of 1814. A part of Sumatra belonged to the dominions of the Sultan of Bantam, who joined the temporal with the spiritual power.

The bay of Bantam is extensive, but full of islands and shoals. The tides rise between five and six feet. The city lies in 6° [illegible] S. lat. 106° [illegible] E. long.

(See Mandelslo's *Travels*; Raffles's *History of Java*; Staunton's *Embassy to China*; Cook's *Voyages*; Crawfurd's *History of Indian Archipelago*, and others.)

BANTRY, a market and post-town in the county of Cork, in Ireland, situated at the head of the extensive bay which takes its name from it. Bantry is in the parish of Kilmacomogue, in the barony of Bantry. Formerly it was called the Old Town, and also Ballygobbin, to distinguish it from the New Town, which was built by Ireton, the friend and associate of Cromwell. Here Ireton erected a fortification, but when it went to decay the new town was entirely forsaken for the old. In the beginning of the present century Bantry was a town of some importance. It had a prosperous pilchard fishery, considerable quantities of which fish were annually sent to Italy, Spain, and Portugal. Dermot O'Sullivan Beare founded a Franciscan friary here in 1460, but all traces of the building have disappeared. There is a school at Bantry, to which the commissioners for administering the funds granted by parliament for the education of the poor in Ireland have afforded assistance. This school has 250 scholars. Part of the French fleet having arrived in the adjoining bay in 1796, fortifications were soon after erected in Bantry, to prevent a future surprise. It contains a population of 4275.

(Smith's *History of Cork*; Carlisle's *Topographical Dictionary of Ireland*; Seward's *Topographical Hibernia*; Dr. Beaufort's *Memoir of a Map of Ireland*; *Population Reports*.)

BANTRY BAY is a deep inlet on the S.W. coast of Ireland, between Mizen Head and Dursey Island, in the county of Cork. It is 21 miles in length and 5 broad, safe and commodious for ships of any size, and free from dangerous rocks and shoals. At the head of the bay are two harbours. One on the south side, opposite Bantry town, and within Whiddy Island, is called Bantry Harbour, which is quite landlocked, and perfectly secure from all winds. The other to the northward is called Glengarif Harbour: it is small, and the entrance narrow. This is also sheltered by a small island, but, from being so confined, is seldom used by any other than coasting vessels. In summer, however, the largest ships may ride in safety outside the island.

Near the entrance of Bantry Bay, on the north shore, is an excellent harbour, large and well sheltered, with water sufficiently deep for the largest ships. It is called Bear Haven, and is formed by Bear Island, on each side of which there is an entrance, and good anchorage everywhere within it, though the best is off Balinakilly. This harbour is well adapted for the rendezvous of a fleet, from its proximity to the sea, being easy of access, and affording good room and shelter, besides which refreshments of all kinds may readily be obtained. Within the headlands of Bantry Bay the stream of tide is scarcely sensible, though off Mizen Head the ebb which runs to the westward flows at the rate of three miles and a half an hour. The depth of water at the entrance is about 40 fathoms, shoaling gradually towards the head of the bay. The coast around the bay is for the most part rocky and high. Near the entrance of Bantry Bay there was an engagement, in the year 1689, between the French fleet which brought James II. to Ireland, and the British fleet, under the command of Admiral Herbert. The latter was very inferior in force, but nevertheless the battle lasted several hours, when the French got into the bay, and the British returned to England, with very inconsiderable loss. The French forces which contemplated an invasion of Great Britain in 1796 fixed on Bantry Bay as the place of rendezvous, and several ships arrived in it on the 22d of December that year. The utmost alarm was created throughout the country by the circumstance; but General Hoche, the commander-in-chief, not having arrived with the rest of the armament, the vessels that had anchored did not deem it prudent to disembark their forces. They sailed for France on the 27th of the same month. The scenery of the bay is considered the most beautiful and striking in the United Kingdom, especially in the neighbourhood of Glengarif. At this last place Lord Bantry has an elegant seat. About seventeen miles nearly due west from Bantry is the great cataract of Hungry Hill, where several small lakes discharge their water over a precipice.

(Norie's *British Channel Pilot*; Smith's *History of Cork*; Seward's *Topographical Hibernia*; Wilson's *Post-Chaise Companion to Ireland*; Camden's *Britannia*; several volumes of *Travels, &c.*)

BANXRING, the Sumatran name of a small arboreal animal, discovered by the late Sir Stamford Raffles, which is intermediate in its nature and habits between the shrews and squirrels. [See TUPAIA.]

BANYAN TREE. [See FICUS.]

BANYUWANGY, or BANJOUWANGUI, one of the nineteen provinces or districts into which the island of Java has been divided by its Dutch possessors, is situated at the eastern extremity of the island, part of its coast forming the western shore of the Straits of Bally. The district lies between 8° and 9° S. lat., and 114° and 115° E. long. The town, which is called by the same name as the district, is at the eastern extremity, on the Straits of Bally, in 8° 7′ S. lat., and 114° 15′ E. long., and is about 550 English miles E.S.E. from Batavia. The town is populous, and is a military post of some importance, in consequence of the many pirates by whom the straits and neighbouring seas are infested. The district contains a volcanic mountain named Goonong Marapi, of great height. Banyuwangy has a bad character in regard to healthiness. The district is covered with immense forests, which are the haunts of a great number of tigers. This is the least populous part of Java, and contributes but little to the colonial revenue.

In 1815, when Java was in the possession of England, a census was taken, from which it appeared that this district, which contains 1,274 square miles, had no more than 8,873 inhabitants, of whom 319 were Chinese.

The district yields the usual produce of Java. The coffee-gardens which it contains are, for the most part, cultivated by criminals, who are banished by sentences of the Dutch tribunals from different parts of the island to this its eastern extremity, where they are forced to labour for the profit of the government. From an article which was inserted in the *Java Gazette* in April, 1828, it appeared that the government was at that time desirous of establishing the cultivation of the nutmeg and the clove in Banyuwangy, where the climate greatly resembles that of the Molucca Islands: it is not known whether this design has been carried into effect. An attempt was made two years earlier to bring the vine into cultivation; and it has since formed one of the conditions upon which leases have been granted to European settlers, that they shall appropriate a certain proportion of their land to this object, in furtherance of which young plants and cuttings of the vine have been brought by the government from the Cape of Good Hope and from Japan. It does not appear that they have yet been successful in producing any wine. For a very long period the Chinese settlers have cultivated vines with great care in this and other parts of Java, but hitherto the produce has only been converted into raisins, which are consumed on the island.

The volcanoes of Java all afford sulphur. The most abundant supply is obtained from the Goonong Marapi mountain, and the purity of the mineral which it yields is said to be such as to render it fit for use without any refining process. The country in the immediate neighbourhood of the mountain just named is uninhabited.

(Raffles's *History of Java*; Crawfurd's *Indian Archipelago*; Count Hogendorp's *Coup d'Œil sur l'Isle de Java*.)

BAOBAB. [See ADANSONIA.]

BAPAUME, a town in France in the department of Pas de Calais (*Strait of Calais*), arrondissement of Arras, on the road from Paris through Peronne to Arras. It is 94 miles N.N.E. of Paris, and about 14 S. by E. of Arras, 50° 6′ N. lat., 2° 52′ E. long. The town is situated in a district very ill supplied with water, being on the ridge which separates the basin of the Schelde from that of the Somme. It is not a very antient place. Towards the close of the eleventh century it was a mere castle, which gave shelter to a band of robbers; but upon the extermination of these, a population gradually assembled round the castle, and in the early part of the fourteenth century (1325 or 1335), Eudes, Duke of Burgundy and Count of Artois, raised it to the rank of a town, and inclosed it within walls. The Emperor Charles V. afterwards strengthened it, to render it a check to the fortress of Peronne, which was then the bulwark of Picardy. In 1641 it was taken from the Spaniards by the French, to whom it was also ceded by the treaty of the Pyrenees in 1659.

Bapaume is still fortified. It is entered by two principal gates on directly opposite sides of the town. The interior is regularly built, and has two places, or squares. The town seems to have been of somewhat more importance formerly than at present. In 1789 there were not more than four or five churches, and a population of 4506 persons in the parish; in 1804 there was only one parish church (the others were probably attached to the different religious houses, and were suppressed with them at the revolution), and a population of 3492. In 1832 the population of the commune was reduced still further, viz. to 3185, of whom 3071 were in the town itself. There is an hospital. The town, owing to its situation, was very ill supplied with water till the year 1721, when M. le Feullon, chief engineer of Bapaume, found water about a mile and a half distant, and succeeded, in spite of the elevated site of the town, in conveying it thither. There is now a fountain of good water in the midst of the place, opposite the town-house. This fountain was, in 1722, ornamented with a statue of Louis XV., then a boy of thirteen.

The manufactures of Bapaume consist of linen cloth and coarse lawn. Oil is made here. (Expilly, *Dictionnaire des Gaules et de la France*, 1762; *Dictionnaire Universel de la France*, 1804-5.)

BAPTA, in entomology, a genus of the order *Lepidoptera*, and family *Geometridæ*. The species of this genus are among the thin-bodied day-flying moths. Mr. Stephens, in his *Illustrations of British Entomology*, confines this genus to two species: *Bapta bimaculata* (the white pinion-spotted), which is of a beautiful white colour, and has two brown spots on the front edge of each of the anterior wings; and *Bapta punctata* (the clouded silver). This differs from the first principally in having the tips of the anterior wings clouded with brown. Both species are occasionally met with in woods in the neighbourhood of London.

BAPTISM (the English form of the Greek word βαπτισμός, *baptismos*), a well known rite or ordinance of Christianity; one of the two sacraments of the English Reformed Church.

When baptism, as a religious rite, was first practised, is a question on which the opinions of the learned have been divided. It is pretty generally admitted, that if any trace of it is to be discovered in the religious usages of any people before the time of our Saviour, and his forerunner John, it is among the Jews; and some early Jewish writers, whose testimony on such a subject is worthy of some regard, speak of it as a custom of their nation from very antient times, and as having been always an accompaniment of circumcision, whether of infants or when a proselyte was made. To this it is replied, that the Hebrew writings which are called the Old Testament, by far the most antient and authoritative monuments which we possess of the early religious usages of that nation, contain no trace whatever of any rite which resembles the baptism of John and of the founder of Christianity. In their religious code ablutions are undoubtedly prescribed in certain cases, but there is no analogy between those cases and the cases in which the Christian rite of baptism is performed; yet it is by no means improbable that those ablutions, which were supposed to wash away impurities, might suggest the idea of baptism, with which has always been connected, in some degree, the notion of the washing away of moral impurity.

We possess, however, the most authentic and satisfactory information, that in the reign of Tiberius there appeared in the wild country, on the banks of the river Jordan, a prophet whose name was John, who called upon the people of Judæa to adopt stricter rules of life, to expect the immediate coming of the kingdom of heaven, and to repent. Great multitudes attended the preaching of John. Most of those who heard him received him as a prophet sent of God. He required of those who became his disciples that they should be *baptized*. This was done in the river, and the meaning of the rite seems, in this case, to have been two-fold: 1. Repentance, or renouncing former opinions and practices; and, 2. Proselytism, or the taking John to be their general spiritual or religious guide and authority. On account of his requiring his proselytes to submit to this rite, the name of the Baptist was given him.

The part which John sustains in the history of Christianity is subordinate to that of a more sacred character, and we hear little afterwards of any sect, or community, or church, held together by a common reverence for the name of John, and the individuals of it baptized into that name. Among those who acknowledged John as a divine prophet, and received baptism at his hands, was Jesus of Nazareth, the long-expected Messiah, at whose baptism there was a supernatural appearance in the air, and a voice heard, which declared him to be the beloved

Son of God, in whom he was well pleased. John also bore his testimony that Jesus was the Messiah. Jesus, under the especial direction and with the peculiar assistance of the Most High, founded that great church or community in which so large a portion of the human race are now comprehended, and appointed that admission into this church should be accompanied by the rite of baptism.

It is remarkable that he did not himself baptize. But while he was himself employed in diffusing that new and sacred truth which he came to communicate, and in the performance of those miracles by which his claim to be a divine teacher was established, his apostles and others of his more eminent disciples did baptize, and many flocked to their baptism. (John iv. 1, 2.) This was done under the eye and with the concurrence of their master, but after his resurrection he gave a more direct sanction to the practice, and in fact established the rite as a perpetual ordinance in his religion, saying to his apostles—'Go ye therefore and teach all nations, baptizing them in the name of the Father, and of the Son, and of the Holy Ghost, teaching them to observe all things whatsoever I have commanded you.' (Matt. xxviii. 19.)

The apostles acted according to this injunction. The language of Peter on the day of Pentecost to the Jews at Jerusalem was this:—'Repent and be baptized every one of you in the name of Jesus Christ for the remission of sins: when they that gladly received his word were baptized, to the number of three thousand.' (Acts ii. 38, 41.) In the eighth chapter of the Acts we have an account of two remarkable baptisms by Philip; and in the same book are so many accounts of the performance of this rite when there was a profession made of belief in Christ, and there are at the same time so many allusions to the practice in the apostolic epistles, that there is no room for doubt that it was regarded by the apostles and first Christians as an instituted ordinance of the Christian church. The meaning of Christian baptism differed little, if at all, from the baptism of John. It implied repentance, and faith in Christ.

The washing was no inapt symbol of this change. When formally administered by some officer of the Christian Church, and in the presence of a Christian assembly, it was an outward and visible sign that the convert took upon himself the profession of Christianity. It was an intelligible act about which there could afterwards be no dispute. The convert might relapse; but if he had once been baptized, there was once a time when he had professed himself a Christian, and when he had given a solemn pledge that he put away his Heathen or Jewish opinions and practices, and adopted the principles of the Christian faith. On the other hand, the performance of the rite by an apostle, or by a person commissioned by the apostles, or by any other person who was himself a Christian, and who professed that he was performing the rite as a Christian ordinance, and in obedience to the command of Christ, was an assurance to the person baptized that he was received into the Christian Church, that he was henceforth to be acknowledged by the whole Christian community as one of themselves, and was become entitled to all the blessings and advantages which attend those who are disciples of Jesus Christ. Our parish registers are not of births but of baptisms, and they are the authoritative records of the admission, by this rite, of persons into the Christian Church.

Different opinions are entertained of the amount of the advantages which ensue on the performance of this rite. Some regard it as not of itself bringing with it any advantages, but as being merely initiatory, and consider that the advantages of a profession of Christianity spring from other sources within the profession itself. Some regard it as in itself an actual washing away of all former sins, and, in the case of infants, of their participation in the guilt of Adam; and under this impression, we find that, in the early ages of the Church, there were those who deferred submitting to the rite till near the close of their lives, that the guilt of a whole life might thus be washed away. Others have taken their stand on the declaration of the apostle (Acts ii. 38), that those who were baptized should receive the gift of the Holy Ghost, and imagine that there is now some effusion of the Spirit on the person baptized. Some attribute to this rite what is called an immortalizing efficacy, so that by baptism alone a person becomes entitled to that immortality which Jesus of Nazareth revealed; and others, again, regard baptism and regeneration as correlative. These opinions have all given occasion to controversies in the Church.

The manner in which it was performed appears to have been at first by complete immersion. John baptized in the Jordan; and in another place (John iii. 23) it is said that he baptized in Enon, near to Salim, because there was much water there. The Ethiopian eunuch went down into the water to receive baptism from Philip. The words *baptism*, and to *baptize*, are Greek terms, which imply, in their ordinary acceptation, *washing*, or *dipping*. The question, however, is not whether entire immersion were the practice in the primitive church, but whether it was regarded as so essentially a part of the ordinance that there could be no baptism without it; and against that opinion it is argued, that this is nowhere declared in the Christian Scriptures; that a partial washing is, as a symbol, or an initiatory rite, as efficient as an entire immersion; that there is no evidence that entire immersion was in all cases demanded by the apostles; that we can hardly conceive that the three thousand converts who were baptized on the day of Pentecost received the rite at Jerusalem by immersion; that in one of the most remarkable cases of baptism recorded in the New Testament (Acts xvi. 33), the jailer and his family were baptized by St. Paul in the night immediately after they had made the profession of their faith, when it is improbable that the means were at hand for entire immersion; and that it is not to be supposed that the apostles would have declined to communicate the advantages of Christianity where they perceived faith and repentance, though the party were in circumstances in which it was impossible, or at least extremely inconvenient, to perform the rite in the usual manner; whence it is inferred that entire immersion is not *essential* to the ordinance.

The words which are to be used in the performance of this rite are thought, by most persons, to be prescribed by Jesus Christ himself:—'Baptizing them in the name of the Father, and of the Son, and of the Holy Ghost.' These words have been adopted as the formula by, it is believed, every church; yet it is remarkable that we do not find these words to have been used as a baptismal formula in any of the baptisms of which we have an account in the book of Acts; and in the account of some of them it is expressly said that the parties were baptized in the name of Jesus. (See Acts ii. 38, and xix. 5.) It would seem, from the manner in which St. Paul writes to the Corinthians (1 Ep. i. 11-17), as if there were at that time some danger lest eminent Christians should be ambitious of having baptisms in their own names.

The opinions of the Christian world have been much divided with respect to the time of life at which it is proper to administer the ordinance. When Christianity addresses herself to the unconverted, the proper time evidently is whenever the faith and repentance necessary are perceived to be complete; but the question relates to the case of nations which are already Christianized, and it properly assumes this form:—Shall the performance of the rite be delayed till the offspring of Christian parents are sufficiently advanced in religious knowledge to have the faith, and, if need be, the repentance of the convert? or shall those who are born in Christian households, and for whom there is the serious intention entertained by those who are their natural protectors to bring them up in the faith and knowledge of the Christian, be devoted early by their protectors to the faith of Christ, and admitted, in their still unconscious state, to whatever advantages may be supposed attend the performance of this rite? Without entering at large into the controversy which has been raised on this point, we may observe that, on the one hand, any profession of faith or repentance can only be made by persons of some maturity of judgment, and that therefore the ordinance seems better adapted to the case of persons who have attained to those years in which it may be expected that there is some acquaintance with the evidence by which the divine commission of our Saviour is proved, some knowledge of the nature of the doctrine taught by him, and some real sense of the advantages which attend the true believers in Christ. On the other hand, it is alleged that there is nothing in the New Testament which relates to the baptism of the offspring of parents themselves Christian, but only to the baptism of converted persons, leaving us without an authoritative direction in the case; that it was natural for the first converts, who were Jews, to infer an analogy between this rite and the initiatory rite of Judaism, which, by the divine command, was to be performed in infancy, and which brought the person who received it within the scope of the promises to

Abraham and his seed, as baptism did within the scope of the promises to believers in Christ; that we read in the Scriptures of whole households being baptized at once; that infant-baptism certainly did prevail in the Church at a very early period; that it has been received by the authorities in the Roman Church, and in the Churches of England and of Scotland, and other Protestant Churches; and, lastly, that among those who attribute a saving efficacy in any form to the ordinance, it is to be supposed that a parent would think himself criminal if he neglected to obtain this blessing for his child at the earliest period possible; and among those who regard it as but initiatory, that there is a propriety in Christian parents presenting their offspring newly-born in a Christian temple, and pledging themselves to a Christian minister, and in the presence of a Christian congregation, that they will bring it up in the knowledge and fear of God through faith in Jesus Christ.

The Quakers and some other Christians contend against the perpetuity of the ordinance. They say that it was intended only for the apostolic age, or, at most, only for persons of mature age who have been converted from Heathenism or Judaism. Against this opinion there is the constant practice of the Church. We find at the very close of the Scripture history the apostles and other Christians proceeding with their baptisms; and at the very beginning of that history of the affairs of the Church which is to be collected from writers whose works are not in the New Testament, we find the ordinance in use among believers. The inference drawn from this is, that the words of our Lord, by which he instituted the ordinance, were understood by his apostles to mean, that all persons should be admitted into his Church by this rite, and that they transmitted this sense of them to those who afterwards were the teachers in the Church.

When baptism was received as a permanent ordinance of the Christian Church, suitable places were provided, called baptisteries, which, in some instances, preceded churches, and were, in fact, the point about which other edifices arose, forming an entire church. Of these baptisteries, it is believed, none remain in England; but in many of the larger churches of England, a portion of the building is set apart for the performance of this rite, and contains the *font*, so called from *fons*, a fountain, perhaps in reference to the original baptisteries, the springs or running streams of the East, or as the Spring of that water which was supposed to be life-giving. The maintenance of a font in the church for baptism is enjoined on every parish. The old fonts of England have capacious basins, large enough to receive the entire body of the infant. It was the practice of the English Church, from the beginning, to immerse the whole body. (See Fuller's *Church History*, p. 109.) Tyndale, writing at the eve of the Reformation, speaks of it as the general practice, and says that the exceptions were in cases of sickness, when the water was only poured on the head of the infant. Dr. John Jones, writing in 1579 on the early culture of children, incidentally notices the fact that some of the old priests of that time were accustomed to dip the child very zealously to the bottom of the font. A few years later the practice was giving way, and the custom of sprinkling only becoming general: for Chappell, Bishop of Cork, in the account which he has left of himself, says that he was dipped, as was the custom in the parish in which he was born. He was born in Nottinghamshire, in the reign of Elizabeth. Since then the baptism of infants by immersion has been almost entirely disused in England. [See Font.]

At the Reformation it was intended to continue an antient practice in the baptism of infants—the trine immersion; and there was an ordinance for the purpose in the reign of Edward VI. This has reference to the three persons in the Godhead named in administering the rite; and when performed according to what is supposed to be the genuine antient usage, at the first immersion the right side must be downward, at the second the left, and at the third the face. Instances do sometimes occur in which the baptism of infants in the English Church is thus performed.

It has always been an object with the authorities in the Church of England to enforce the attendance at the public font in the church. Private baptism is rather connived at than allowed, except in cases in which there is sickness or hazard of life; nor is the clergyman in these cases to perform the full service, but only so much as may be needful, in the estimation of himself and the parents, for satisfaction that the child, if it dies, die not unbaptized. The friends of the infant must still repair to the church for the completion of the ceremony. Among Dissenters the baptism of infants has been, for the most part, performed at home.

It is not absolutely necessary that the rite should be performed by a clergyman. The Church of England allows, in certain cases, of lay baptism; and it was on this allowance, in a great measure, that Sir John Nicholl rested the case in his judgment pronounced on the 11th of December, 1809, in the case of Kemp and Wickes, clerk. "Articles were offered against the clergyman for refusing to inter the child of two of his parishioners on the ground that it had not been baptized. It was proved that it had been baptized by a dissenting minister. Sir John Nicholl's judgment was, that the baptism was so far sufficient, and that the clergyman had acted contrary to the law. Severe remarks have, however, been made extra-judicially on this determination.

The Church requires that at baptism there shall be *sponsors*, from *spondeo*, to promise, or, in our own Saxon tongue, *godfathers* and *godmothers*, who pledge themselves that the infant shall be brought up in a Christian way. They are to be not less than three: for a male child two men and one woman; for a female child two women and one man. This practice is of great antiquity in the Church. It is supposed to have originated in times of persecution, when the parents might be hurried away to death; and it secured for their helpless offspring some degree of attention from friends of the family, who thus solemnly pledged themselves to see that the child was brought up in the knowledge of Christian truth. The reason has ceased, but the practice remains. Its effect is to introduce one other social tie among private families and friends; and persons who voluntarily undertake the office cannot hold themselves absolutely excused from some attention to the religious education of the infant, especially in the case of the death, or the criminal negligence, of its natural protectors.

Another incident to baptism, as administered in the English Church, is the giving a name to the child. In th Christians seem to have followed the example of the Jews who assigned a name when the rite of circumcision was performed. The name thus given during the performance of one of the sacraments is appropriately called the Christian name. The surname, or name of addition, is not on this occasion mentioned; and it is observable, that though there are frequent instances of the change of the surname in after life, the instances are extremely rare of any change in the Christian name. In the Catholic Church, indeed, this name is not unfrequently changed by persons who enter holy orders, or into any religious society; but the English Protestant Church seems not to have pointed out the way in which the change can be legally effected, though some have maintained that it may be changed by the authority of the bishop, if solicited by the party at the time when presenting himself for confirmation.

The Church of England retains the signing the infant with the sign of the cross, as a token that it is hoped it will become a good soldier of Jesus Christ. This is one of the ceremonies which the English reformers thought it expedient to retain from many ceremonies with which this ordinance had been loaded in the earlier times of the Church. These additions to the simplicity of the ordinance began at a very early period. Tertullian, a Christian writer, who flourished from about A.D. 194 to A.D. 216, says that it was then the custom to give the baptized person milk and honey, and that he abstained from washing for the remainder of the day. The giving of salt, the touching the mouth and ears with saliva, anointing, the imposition of hands; and, lastly, formal exorcism, were by degrees introduced into the ordinance; and most, if not all, of them were the practice of the English unreformed Church. The sign of the cross was alone retained: but this gave great offence to the party of reformers called Puritans, who would have brought back everything in respect of religion to what they conceived to be the precedent, or the express directions of Scripture.

The most important treatises on the subject of baptism are, *The History of Infant Baptism*, by William Wall, D.D., 1705; *Reflections on Mr. Wall's History of Infant Baptism*, by John Gale, D.D., 1711; *Defence of the History of Infant Baptism against the Reflections of Mr. Gale and others*, by W. Wall, 1720; *History of Baptism*, by Robert Robinson, 1790.

BAPTIST (JOHN BAPTIST MONNOYER), was born at Lisle, in the year 1635. He commenced his

studies at Antwerp, with the intention of becoming an historical painter; but growing diffident of his powers in that branch of art, he had the good sense to relinquish it, and devote himself to an humbler walk, chiefly the representation of fruit and flowers, in which he showed great talent and acquired high reputation. He went early to Paris, where the spirit and novelty of his style soon attracted attention; and he was engaged to ornament the palaces of Versailles, Meudon, Marly, and Trianon. He was elected into the Academy in 1663. At the invitation of Lord Montague, then English ambassador at Paris, he accompanied that nobleman to England, where he commenced his practice by decorating Montague House, now the British Museum, with a beautiful series of embellishments. He continued in this country nearly twenty years, enjoying uninterrupted patronage; and his works form conspicuous ornaments in the mansions of the various nobility and gentry by whom he was employed. There is at Kensington Palace a looking-glass which he embellished with garlands of flowers, in his happiest manner, for Queen Mary II., who was so pleased with observing the progress of the work, that she sat by during nearly the whole time that he was engaged on it.

Baptist was more employed in ornamenting halls, staircases, and the interior of apartments, than in painting detached pictures. The boldness and vivacity of his style are admirably adapted to that sort of embellishment; but even in his easel-pictures there is merit enough to rank him among the most eminent practitioners in his branch of art. His compositions of flowers are like the accidental combinations of nature—varied, fluctuating, and graceful; his execution is surpassingly fluent and spirited; his touch firm and discriminating; and his colouring has all the freshness of reality.

Baptist certainly cannot be compared with Van Huysum, Rachel Ruysch, or Mignon, in depth of tone, refinement of touch, or exquisite finishing; yet he has left some works which show that he might have acquired considerable excellence even in those qualities had he strenuously directed his attention to them. Six drawings which he executed for the Duke of Ormond may be adduced in proof of this: they are representations of East Indian birds, after nature, painted in water colours on vellum, and not less remarkable for truth and expression than for taste and delicacy of pencilling. A few plates are extant etched by Baptist, after his own designs: the subjects are vases with flowers, &c., and are executed with great lightness and spirit.

Baptist died in 1699, aged 64. He left a son, Anthony Monnoyer, called Young Baptist, who practised in his manner, but who, although by no means destitute of talent, fell far short of the excellence attained by his father.

BAPTIST, JOHN GASPAR, was a native of Antwerp, and a pupil of Boschaert. He came to England during the civil wars, and served in Lambert's army; but after the restoration, returned to his original profession, and was much employed by Sir Peter Lely, in painting his draperies and back-grounds; he worked occasionally also for Kneller and Riley. He was not without original talent, and made designs for tapestries which evince considerable skill in drawing. There is a portrait of Charles II. in St. Bartholomew's Hospital by this artist. He died in 1691.

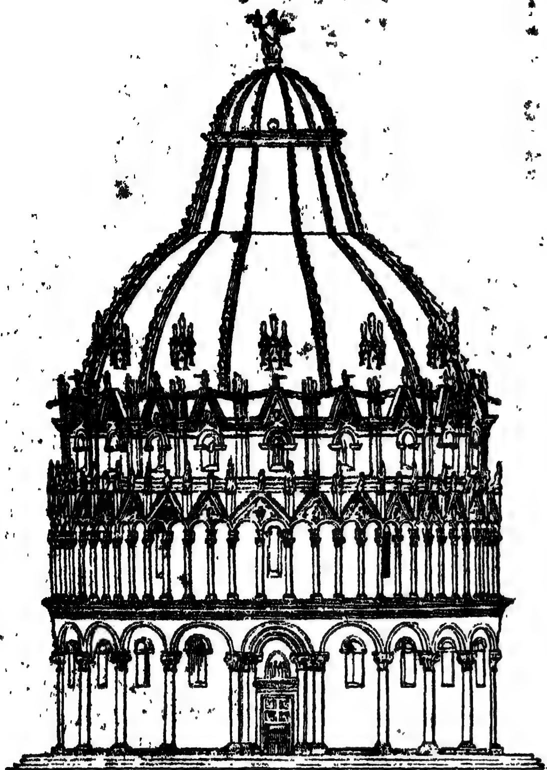
BAPTISTERY, an antient building, in which Christians performed the ceremony of baptism. The word is derived from the Greek βαπτιστήριον, a large vase, labrum, or piscina of the frigidarium used to wash in. [See Bath.] (Plin. lib. 2, ep. 17; lib. 5, ep. 6.) It was called by the Romans *baptisterium*, from whence is derived the word baptistery, a place in which the ceremony of Christian baptism was performed. It is most probable that the early Christians baptized for a long time after the primitive manner which was practised by St. John (Matt. iii. 6, 16). Baptisteries were afterwards erected on a large scale, for the purpose of receiving a great number of individuals.

These baptisteries generally stand near the churches to which they belong: the form is, for the most part, hexagonal, although some are circular; and it is very probable that the form of these buildings was imitated from some apartment in a Roman bath. [See Bath, and the plan of a Roman bath discovered at Bologna, cap. vi. of Cameron's *Roman Baths*; and the Church of Santa Maria Maggiore, near Nocera, formerly a Roman bath.] (See the vignette at the commencement of the same work.)

The most celebrated existing baptisteries are those of Rome, Florence, and Pisa; the most antient is the baptistery of S. Giovanni in Fonte, near the church of S. Giovanni Laterano, at Rome, commonly said to have been erected by Constantine the Great. The plan of this building is an octagon, with a small portico at the entrance; the interior is decorated with eight most beautiful porphyry columns, the finest of the kind in Rome. These columns, unequal in diameter, support an architrave, over which eight small white marble columns are placed; above this second order there is an attic decorated with pilasters, and this is crowned with a dome. The walls are adorned with frescos, consisting of subjects from the Gospel and the principal events of the reign of Constantine. In the centre of the building there is an octangular basin, three feet deep, lined and paved with marble. A modern font now stands in the centre of this basin, raised on steps of marble. The diameter of this structure is about seventy-five feet (according to the measurement of Nolli); and it appears to have been constructed with the materials of other buildings. Eustace calls this structure a chapel, and informs us that in it 'only, and upon the eves of Easter and Pentecost, was public baptism administered in Rome; many magnificent ceremonies, which occupied the whole night, accompanied this solemnity.' (Eustace's *Class. Tour.*, vol. i. p. 337.)

The Baptistery of Florence, which is also octangular, with a diameter of about one hundred feet, according to the plan in a work entitled *Metropolitana Fiorentina*, stands opposite to the principal entrance of the Cathedral. The date of its first construction is unknown: the Florentines pretend that it was originally a temple to Mars. In the internal arrangement, sixteen large granite columns are employed to support a gallery, which is carried nearly all round the interior; the vaulting is decorated with mosaics, by Andrea Tafi, the scholar of Cimabue; on the pavement is a large circle of copper, with numerical figures and signs of the zodiac upon it; and in the centre of this stood originally a very fine octagonal basin. The external façades are built of black and white marble, and designed in that peculiar style of Florentine architecture of which Giotto was the father. Possibly this edifice may have been erected after his designs. The three great bronze doors are celebrated for the beauty of their bas-reliefs, and for the marble and bronze figures above them. The valves of the doors are divided into pannels, on which are represented the principal events of the life of St. John—'the cardinal and theological virtues' (Eustace's *Class. Tour*), and subjects from the Old and New Testament; and so important was the subject considered, that learned men were engaged to select subjects for the sculptor. These individuals were Nicolo da Uzzano and Lionardo d'Arezzo. One of these doors was executed as early as 1330, and in after times eulogised by Michael Angelo in the highest style of panegyric. The most celebrated of these doors was made by Lorenzo Ghiberti. (See thirty-four engravings of *La Terza Porta di San Giovanni di Firenze*, Firenze, 1773, in small folio, in the British Museum.) Another was made under his direction, assisted by many other artificers. Fifty years were employed in making and completing them. (See the work quoted above, in which are also published the contracts for their execution.) The most antient was made by Andrea of Pisa.

The Baptistery of Pisa, erected between the years 1152 and 1160, by Diotisalvi, is of a singular design. The plan is circular, with a diameter of 116 feet; the walls are eight feet thick; the building is raised on three steps, and surmounted with a dome in the shape of a pear. The external elevation is divided into three stories: in the basement the columns, twenty in number, are engaged, and have arches springing from column to column, with a bold cornice above; in the first story the columns are smaller, stand out in relief, and are placed closer together; and the order is surmounted with pinnacles and high pediments, placed at equal distances: the terminations of these parts are crowned with statues. Above this is an attic story, decorated with other high pediments, pinnacles, and statues. The dome, which is covered with lead, is intersected by long lines of very prominent fretwork: all the lines meet in a little cornice near the top, and terminate in another dome, above which is a statue of St. John. The interior is much admired for its proportions: eight granite columns, placed between four piers decorated with pilasters, are arranged round the basement story, which support a second order of piers, arranged in a similar manner, on which the dome rests, which is famous for its



[Geometrical elevation of the Baptistery of Pisa, from an elevation by J. and F. Milanis.]

Scale 0 50 100 feet.

echo, as the sides produce the well-known effect of whispering-galleries. In the plan drawn by J. and F. de Milanis, preserved in the British Museum, columns are not shown in the interior. In the middle of the baptistery is a large octagonal basin of marble, raised on three steps. Within the basin there are four circular places hollowed out for water, and round the centre of the basin, which is occupied by a pedestal, is a place likewise hollowed out for the priest, who was thus enabled to turn from one basin to the other. By this means confusion was prevented, which would otherwise have occurred from the crowd pressing to one side of the font only. The city of Ravenna and the episcopal cities of Tuscany have also their baptisteries.

The largest known baptistery ever erected was that belonging to the church of Santa Sophia at Constantinople, which is said to have been so spacious as to have once served for the habitation of the Emperor Basiliscus; and in it also a very numerous body of persons once assembled in council. (*Encyclopédie Méthodique.*)

The multangular edifices placed at the sides of cathedrals, which are called chapter-houses, are very similar in plan to the antient baptistery. It is possible that they were originally used for that purpose. Bede mentions a wooden *oratory* built in haste at York for the express purpose of baptising Edwin, King of Northumberland, on Easter-day, A.D. [illegible] (Bentham's *History and Antiquities of the Conventual Church and Cathedral at Ely*): from which circumstance it would seem that baptisteries were formerly erected in England. The baptismal font [see FONT] is not synonymous with baptistery; but should be applied only to the large stone vessel placed in the centre of the baptistery. At the close of the sixth century, the baptismal fonts belonging to baptisteries began to be placed in churches. At a font placed in a church the French King Clovis received baptism at the hands of St. Remis, archbishop of Rheims.

The baths in the English Baptist meeting-houses which are used for baptism are called baptisteries. They are [illegible] invariably in the places of worship.

(Montfaucon's *Monuments François*, vol. i.; [illegible] *Ristretto delle Cose le più notabili di* [illegible]; Cameron's *Roman Baths*; *La Metropolitana Fiorentina*; *La Terza Porta di S. Giovanni di Firenze*, small folio; Nolli's *Plan of Rome*; and the *Plan and Elevation of the Baptistery at Pisa*, by J. and F. de Milanis. The two last are in the King's Library in the British Museum. Plans, sections, and elevations of this building are given in a very beautiful and accurate work by Messrs. Taylor and Cressy, entitled, *Architecture of the Middle Ages in Italy*.)

BAPTISTS, a religious sect, and, in England, one part of the body known by the general name of the Three Denominations of Protestant Dissenters. As the name implies, they hold peculiar views on the subject of baptism; maintaining that this Christian rite ought to be administered by immersion, and not by sprinkling; at such an age that the ordinance can be regarded as the profession of the baptized person's own faith, and not in infancy. Such they believe was the practice of the apostolic times. In vindication of their mode of performing the ordinance, they lay great stress on the original word βαπτίζω, which signifies, as they contend, nothing but immersion. They defend the postponement of the rite from the words of the baptismal commission, in which the Apostles are commanded to teach before they baptize. 'Go ye and teach all nations, baptizing them in the name of the Father, and of the Son, and of the Holy Spirit.' The reception of the Gospel being thus assumed as an indispensable qualification for baptism, the Baptists require that all to whom they administer it should repent of their sins, believe in Christ, and joyfully receive the word; a profession to this effect is made by most persons who are baptized in their communion.

An outline of the characteristic opinions of this sect has been lately promulgated in the four following heads: 1st, That baptism commenced with the Christian dispensation, and was peculiar to it, bearing no analogy to any previous institution, such as circumcision; nor in any sense derived from previous enactments, but revealed as a positive law of the kingdom of Christ; 2dly, That baptism is only scriptural as administered by the immersion of the whole body in water; 3dly, That it cannot scripturally be administered to any but as a profession of faith in Christ Jesus; 4thly, That as a command of the New Testament, it is obligatory on all who profess faith in Christ, and is intended to form a great line of separation between Christ and the world.

The question of baptism was brought before different councils, in the fifth century, whose decisions were given in favour of infant baptism. The opposite opinions were therefore anathematized; and those who held them incurred the penalties attached to heresy. The baptismal controversy is alluded to in the writings of several of the fathers, some of whom did not scruple, in spite of edicts and decrees, to condemn the practice of baptizing infants, as a deviation from scripture and the early custom of the Church. The same view of the subject was very prevalent in the eastern provinces of the Roman Empire, where it became so popular that, in the ninth century, when that powerful schism arose which led to the formation of the Greek Church, this was one of the articles in which an irreconcileable difference of opinion prevailed between the new communion and the old; the latter adhering to its established custom of sprinkling infants in baptism, while the former performed the ceremony by trine immersion.

The schism which had occasioned such a defection from the Church of Rome did not remove the cause of controversy concerning baptism; but, on the contrary, increased it by the intolerant proceedings which were taken against those who refused to be silenced. Driven from the bosom of their own communion, they took refuge in the churches of the Waldenses, in the vallies of Piedmont, and, at a later period, joined the disaffected sects in Germany and Flanders, amongst whom they sowed the seeds of their own doctrines. The zeal with which they laboured to spread their opinions only made them a more conspicuous mark for persecution. Imprisonment, exile, or death, was the fate of those who persisted in their adherence to this heresy. All the terrors of the Church were invoked to extinguish the offensive tenet; but so rapid was its growth under persecution, that the numbers of those who professed it in the beginning of the 12th century are said by Mosheim to have amounted to 800,000. From this time to the commencement of the Reformation, Germany was the chief seat of the Baptist [illegible]; from whence, following the course of the Rhine, they spread over Holland. Being thus scattered over that part of the continent in which the doctrines of the Reformation were

[illegible], they availed themselves of the opportunity of gaining attention to their own views. From this great epoch in the history of religious opinions may be dated a new era in the history of baptism. Up to this time the doctrine, though so long and tenaciously maintained, appears not to have bestowed any particular designation upon those who held it. Their existence, as a distinct sect, commenced in Germany in the days of Luther, under the name of Anabaptists. Unhappily for the success of the doctrine, it was blended with principles so fanatical and lawless, that none who had a respect for the morals and order of society dared to avow it. So disreputable did the very name of this disorderly sect become, that it has made the advocates for baptismal immersion averse to the name of Anabaptists. The term Baptist has the advantage of being more etymologically correct than the earlier designation of Anabaptist, as *ana*baptism is only an accident, and not an essential circumstance. It is only necessary for us to remember, in order to preserve the thread of their history, that those persons who first insisted upon the necessity of baptismal immersion were, and are still, frequently known on the continent by the name of Anabaptists (in German Wiedertäufer), although the opinions now held by them bear a close, if not a complete, resemblance to those of their English brethren who are called Baptists. But the term Wiedertäufer is considered by the continental Baptists as a word of reproach; and in Germany they prefer to call themselves *Taufgesinnte*, and in Holland *Doopsgezinde*. The Mennonites, so called from Menno Simonis, always disclaimed all connexion with the Anabaptists of Münster; they now form a numerous body in Holland, and are found in various parts of Germany; in Prussia they are said to amount to 15,000.

(See Anabaptists; and *Geschichte der Kirchen—Reformation zu Münster, &c.*, Münster, 1825.)

Little is known of the Baptists in England before the sixteenth century. Their name then appears among the various sects who were struggling for civil and religious freedom. Their opinions, at this early period, were sufficiently popular to attract the notice of the national establishment, as is evident from the fact that, at a convocation held in 1536, they were denounced as 'detestable heresies utterly to be condemned.' Proclamations followed to banish the Baptists from the kingdom; their books were burnt, and several individuals suffered at the stake. The last person who was burnt in England for his religious opinions was a Baptist, of the name of Edward Wightman, of Burton upon Trent: he was not, however, burnt as a Baptist, but for blasphemy and heresy.

We do not hear of any congregation of Baptists in this country before 1607. At that time one was formed by Mr. Smyth, a clergyman of the Church of England, who, having embraced the leading tenet of this denomination, resigned his living, and opened a place for public worship on the principles of the Baptists in the metropolis. This step encouraged others to follow his example who had hitherto concealed or privately professed their opinions. The forms of worship adopted by these congregations, that sprang up in various parts of England and Wales, did not materially vary from the practice of the Puritans. The reformed churches on the continent furnished a model for all the sects which [illegible] contended for the right of nonconformity, and have flourished since under the name of the Three Denominations of Protestant Dissenters. Among these, the Baptists were not the least distinguished for the consistency of their conduct in maintaining the right of private judgment, and in advocating the principle of universal toleration in matters pertaining to religion.

The Baptists subsist under two denominations, viz., General and Particular Baptists. The latter designation is given to those who hold Calvinistic views, and who are in every respect but their distinctive doctrine the same as the Independents. The General Baptists maintain the doctrine of universal redemption; but they are divided into the Old Connexion (Unitarian), and the New Connexion (Trinitarian), the latter by far the most numerous. Among both the Particular and General Baptists there is another ground of separation, relating to the terms of communion at the Lord's Supper. Some churches (each society or congregation is a church) do not allow persons who have not received baptism according to their views of it to join with them in the celebration of the rite. Of this number are some of the Particular Baptists, and all the New Connexion of General Baptists. Others, however, do not scruple to meet, on that occasion, not only those of the Baptist persuasion who hold other opinions widely different from their own, but even persons who do not embrace the Baptist tenet, provided their religious faith is, in other respects, as they conceive, orthodox, and their lives conformable to their profession. This is called Free Communion. The tolerant spirit which it cultivates, advocated as it has been by those eloquent defenders of liberty, Robert Robinson and Robert Hall, is making rapid progress through the whole denomination.

In Ireland and Scotland the Baptists have many congregations; but neither there nor in this country do their opinions spread so fast as in the United States of North America. The number of their adherents in that part of the globe is estimated at 408,846. In this country the Particular Baptists are said to amount to 27,580; and the General Baptists to 11,000: these are the numbers of baptized communicants, but the number of attendants at Baptist places of worship is much greater.

The Particular Baptists support colleges at Bristol, Bradford, Abergavenny, and Stepney, and the General Baptists of the New Connexion have small academies at Wisbeach and Loughborough for the education of young men for the Baptist ministry. They have funds and associations for aged ministers, for widows, and for the education of the children of their ministers. Besides these, their pecuniary exertions for the support of home and foreign missions are very considerable. The English Baptists are among the foremost who sent missionaries abroad to teach the doctrines of Christianity. For the advancement of this object, they have no less than three hundred agents in distant countries; in addition to which, they employ a great number in visiting the rural districts at home.

(See *An Historical Sketch of the Baptist Denomination*; Mosheim's *Ecclesiastical History*, vol. iv.)

BAR, in *music*, a perpendicular line drawn through the staff [see Staff], dividing a piece of music into certain equal portions or measures, in order to render its execution more easy. The term *bar* is also applied to the quantity contained in any such portion: thus we say, a bar of two minims, of six quavers, &c.; and a bar in common time, in three-eight time, &c. Sir John Hawkins remarks, that the use of bars is not to be traced higher than the year 1574; and that it was considerably later before their use became general. He conjectures that we are indebted to Henry Lawes for their common use, who published his *Dialogues, &c.* in 1653. That laborious historian may be right as relates to this country; though, with a work lying before us, *Madrigali e Canzonette, posti in Musica dal R. P. Severo Bonini*, dated Firenze, 1607, in which the bars appear throughout, we cannot bring ourselves to think that nearly half a century elapsed before so obvious an improvement was adopted in England.

Double Bars mark a conclusion. They are likewise placed at the end of each strain; and if accompanied by dots, *e. g.*



they indicate that the part next the side on which the dots appear is to be repeated.

BAR is a term applied, in a court of justice, to an inclosure made with a strong partition of timber, three or four feet high, with the view of preventing the persons engaged in the business of the court from being incommoded by the crowd. It has been supposed to be from the circumstance of the counsel standing there to plead in the causes before the court, that those lawyers who have been called to the bar, or admitted to plead, are termed *barristers*, and that the body collectively is denominated *the bar*; but these terms are more probably to be traced to the arrangements in the Inns of Court. [See Barrister and Inns of Court.] Prisoners are also brought for trial to the same place; and hence the practice arose of addressing them as the 'prisoners at the bar.' The term bar is similarly applied in the houses of parliament to the breast-high partition which divides from the body of the respective houses a space near the door, beyond which none but the members and clerks are admitted. To these bars witnesses and persons who have been ordered into custody for breaches of privilege are brought; and counsel stand there when admitted to plead before the respective houses. The Commons go to the bar

of the House of Lords to hear the king's speech at the opening and close of a session.

BAR, a large town in the province of Bahar in Hindustan. This town is built on the south bank of the Ganges, and is situated in 25° 28′ N. lat., and 85° 46′ E long. The houses in Bar are estimated to amount to 5000 in number: they are ill built, and the whole town presents a very mean appearance. Bar is a place of considerable trade. (Hamilton's *East India Gazetteer.*)

BAR, the name of three towns in France of some consequence, distinguished from each other by the names of the rivers on which they lie. They are *Bar sur-Aube*, *Bar-sur Ornain*, otherwise *Bar-le Duc*, and *Bar-sur-Seine.*

BAR-SUR-AUBE is on the right or north-east bank of the Aube, and on the road from Paris to Bâle, 125 miles E S.E. of Paris, and 30 miles E. of Troyes, the capital of the department. 48° 15′ N lat., 4° 44′ E. long. It is an antient town, situated at the foot of a tolerably steep and high mountain, by which it is commanded, and stretching agreeably along the banks of the river from which it takes its name. Bar was a place of more importance in former times. Four fairs were held in the year, to which merchants resorted from different parts of Europe. There were separate quarters in the town distinguished as the Hollanders' quarter, the Germans' quarter, the quarter of the men of Lorraine, &c. The Jews also were established here, and had a handsome synagogue. At present the trade of the place is in the wines of the neighbourhood, woollen and hempen cloth, serge, hosiery, and paper. These goods are conveyed to Paris partly by the Aube (which, however, is not navigable above Arcis-sur-Aube, some forty miles below Bar), and the Seine. The manufactures are nails, buttons, tiles, leather, oil, brandy, and vinegar Several years since a plan was formed for rendering the upper part of the Aube navigable, and for prolonging the communication, by means of a railroad, to the sources of the Seine. (Dupin, *Forces Productives de la France*) The church at Bar was collegiate. The population in 1832 was 3890.

On the mountain at the foot of which Bar stands are the ruins of a town, which is said to have been destroyed by the Vandals, or rather by the Huns, and to which some have given the name of Florence, but others assert the ruins to have been only those of a fort, for which, however, they appear too extensive. The whole are surrounded by a double ditch, now half filled up, but which seems to have been very deep. Upon the same mountain there was, in after times, a priory called after St. Germain or Germanus (martyred by the ferocious Attila), who assisted in building the church of the priory. In this church his remains were deposited.

Under the Merovingian and Carlovingian princes, Bar-sur-Aube belonged to the crown. When the third race (that of Hugues Capet) came to the throne, it was under its own counts, but was re-united to the crown with the rest of Champagne. Philip V. (*le Long*) sold it, but the inhabitants repurchased it that it might not lose its title of *royal town*, and it was re-united to the royal domains upon condition that it should neither be sold nor alienated.

Bar-sur-Aube is the seat of a sub-prefecture. Its arrondissement contains, according to some authorities, 560 square miles, and had, in 1832, a population of 40,112 persons. The neighbourhood of the town yields pretty good wine. (*Dictionnaire Universel de la France*; Expilly, *Dictionnaire des Gaules*, &c.)

During the invasion of France by the allied forces in 1814, a severe conflict took place at Bar-sur-Aube, but it was not followed by any decisive results.

BAR-SUR-ORNAIN, otherwise BAR-LE-DUC, is situated on the river Ornain (a tributary of the Marne), 152 miles east of Paris by a somewhat circuitous route through Meaux, Châlons-sur-Marne, Vitry-sur-Marne, and St. Dizier. 48° 47′ N. lat., 5° 10′ E. long. It is the capital of the department of the Meuse.

In the tenth century Frederick, Duke of Mosellane, or Upper Lorraine, and brother-in-law of Hugues or Hugh Capet, built a fortress to defend Lorraine from the incursions of the people of Champagne. To this castle the name of *Barrum* (barrier) was given, from its situation on the frontier and the purpose of its erection; it became the nucleus of the town of Bar. This castle was subsequently enlarged; but a great part of it was destroyed by fire in 1649, and a further part was demolished in 1670 by order of Louis XIV.

Bar rises on the side of a hill, and is divided into the upper and lower town: the former was, previous to the Revolution, occupied almost exclusively by the noblesse; but these emigrated in a body (*en masse*), and the upper town seemed for a while deserted. In this upper town, or rather on the declivity a little below it, but commanding the lower town, are the remains of the castle above mentioned, having in front of them an open space, from which is an abrupt descent to the lower town. The lower town is the seat of trade, and is more extensive than the upper town, stretching under the hills along the river; the street of the tanners may be considered handsome. A channel cut from the river conveys the water to several tanneries and mills; and there are three stone bridges over the Ornain, which passes through the town. (Expilly, *Dictionnaire des Gaules*, &c., 1762.) There are few vestiges of the fortifications remaining.

Before the French Revolution there were many religious establishments at Bar-le-Duc. There were two collegiate churches, that of St. Maxe or Maxime (Maximus) situated at the bottom of the open space in front of the castle, which separates the upper and the lower town, and that of St. Pierre (St. Peter) in the upper town. Of these churches that of St Maxime is the most ornamented; that of St. Pierre contains a remarkable piece of sculpture, a body in a state of decay, represented with frightful truth. It is on the tomb of a Prince of Orange (who was killed at the siege of St. Dizier in 1544), brought from the church of St. Maxime; and is the work of a sculptor of the sixteenth century, Ligier Richier, several of whose works adorn the church last mentioned Besides these two churches there were monasteries of Carmelites and of the Annunciates, also a chapel of Notre Dame de Paix, in the upper town, and in the lower town were the monasteries of the Augustins and of the monks of St Anthony, a monastery of St Claire, and a priory of Notre Dame. In the town or suburbs were establishments of Capuchins, Minims, of the sisters of St. Charles, and of Charity. The sisters of St. Charles had charge of the hospital of Bar, formerly in the hands of the Benedictines, and afterwards of the monks of St. Antony

Bar le-Duc is celebrated for its sweetmeats, it manufactures a great deal of cotton yarn, also some woollen cloths and stuffs, hosiery, laces, hats, gloves, and leather Many of the cotton works are moved by water, and one at least by steam. The river is navigable, and there is a good deal of business done in forwarding, by water carriage, the produce of the neighbouring iron works, the wines of the district, and the planks of oak and fir which come from the neighbouring forests, and are floated down the stream. There are some dye-houses at Bar-le-Duc. The population in 1832 was 12,496.

The arrondissement of Bar-le-Duc comprehends a space of 580 square miles, and contained, in 1832, a population of 82,134. (Expilly, *Dictionnaire des Gaules*; *Dictionnaire Universel de la France*; *Voyages en France depuis* 1775, *jusqu'à* 1817; Malte Brun, &c.)

For an account of the duchy of Bar, see BARROIS, LE.

BAR-SUR-SEINE, a town in the department of Aube, on the road from Paris through Troyes to Dijon, 113 miles E.S.E. of Paris, and 18 miles S.E. of Troyes. It is on the left bank of the Seine (from which it takes its distinctive appellation) just below the junction of the Ource with that river. 48° 7′ N. lat., 4° 22′ E. long.

This small place is situated at the foot of a hill, which shelters it on the west; it extends eastward to the Seine, which, however, is not navigable, and does not become so till it reaches Troyes several miles below Bar-sur-Seine. The town is well built, and there is a handsome stone bridge over the river. The promenades are agreeable, especially that along the Seine. The population is small, having been, in 1832, only 2269; and the chief trade carried on is in the produce of the neighbouring country; corn, provisions, cattle, and the wines of the Riceys, three towns in the neighbourhood. It was formerly celebrated for its cutlery, but this branch of trade has been given up. Paper is made at Villeneuve, in the vicinity of the town. It is the seat of a sub-prefect, whose arrondissement contained, in 1832, a population of 61,477, and comprehends 648 square miles.

Bar-sur-Seine was formerly a much more considerable place; but it suffered severely in the contest between the French and English, in the reign of Edward III. of England. In this war, in 1359, it was burned, and more than 900 good houses destroyed. According to some accounts, it was also taken and pillaged in [illegible] 1478. Previous to the

Revolution it contained a convent of Mathurin or Trinitarian monks, and a nunnery of Ursulines; also an hospital, the Hôtel Dieu, with twelve beds: it possessed the right of sending deputies to the States-General of Burgundy.

There was formerly a fortress on the hill for the protection of the town, but it was rased by the inhabitants in 1536. On the same hill was a chapel, built in the latter part of the seventeenth century, in which was an image of the Virgin, said to have been found in an old oak in a wood a short distance from the town. This image drew great crowds of the neighbouring peasantry together.

Bar-sur-Seine was the capital of a small county of the same name in Burgundy. There is an iron mine, and a quarry of excellent marble at Riel les Eaux, in the neighbourhood.

The county of Bar was under its own counts till 1223, when it passed into the hands of Thibaut, Count of Champagne. It came by marriage to Philip IV. (*le Bel*) of France; was ceded in 1435 by Charles VII. to the Duke of Burgundy; and was again annexed to the domains of the crown by Louis XI. It subsequently passed to the houses of Bourbon, Montpensier, and Orleans. (Expilly, *Dictionnaire des Gaules, &c.*; *Dictionnaire Universel de la France, &c.*)

BA'RABA, or BARABINSKAJA STEP. Eastward of the Ekaterinenburg line of the Ural Mountains, and between the banks of the Irtyche, or Irtish, and the Oby, which rivers bound it on the north, west, and east, whilst the Altai range skirts it on the south, lies the immense level, extending nearly 300 miles from west to east, and 400 miles from north to south, which is known by the name of the Baraba, or Barabinsky Step. It forms nearly the whole southern portion of the Russian province of Tobolsk, and part of the south-western districts of the adjoining province of Tomsk, and is conjectured by some writers to have been in remoter ages a bed of the ocean. This great expanse of flats is in many parts fertile, but full of swamps and salt lakes, the latter of which Dobell reports to become low in dry seasons, when their waters are so poisonous that numbers of horses and cattle die by drinking of them. The Uba and Itkul are the largest of these lakes. The Baraba is also watered by the Tara, Om, Tartas, Tshaus, and Tur, as well as interspersed with forests of firs and birches, owing to which, in some parts, Cochrane tells us, 'it exhibits park scenery.' He speaks, likewise, of the central districts of the step as 'presenting a good deal of cultivation, which increases towards the west. The soil is considered so fine that it resists the cold in a more than ordinary degree. Considering, too, the northern situation of the Barabinsky Step, the excessive rigour of the climate, which forty years ago was deemed uninhabitable, and the various obstacles which opposed agriculture, it cannot be denied that great praise is due both to the government and colonists. At present probably there is less danger in traversing it than any other part of the Russian empire.' Those colonists were at first recruits and exiles, whom the fertility of the soil prompted the Empress Catharine to settle upon it in the year 1764; and they and their successors have cultivated it to so much advantage, that farms and villages have sprung up where, Dobell says, 'there was scarcely the trace of a human footstep.' It is principally inhabited, however, by the Barabinzes, a semi-nomadic race, of Tartar descent, many of whom have the flat face, small and elongated eye, large ears, and black hair of the Kalmuck tribe. Their numbers are estimated at nearly 20,000, or, according to the usage of the country, at between 5000 and 6000 bows and quivers, *i. e.* full-grown males; their religious tenets, with the exception of a few converts to Christianity, are those of Mohammedanism. In winter they live in wooden huts, but in summer they wander from place to place with their flocks and herds (for the step abounds in good pastures), pitching their jurtes, or tents of felt, or erecting a covering of rushes for temporary shelter. Few of them are above comparative indigence. They live upon the produce of their cattle, or by fishing on the lakes, and partially by cultivating the soil. In the central part of the step, Cochrane observes, 'horses, goats, sheep, and cows appeared very abundant; bears and wolves abound in the neighbourhood, and approach the villages so close as often to alarm the people; hogs, fowls, and ducks are seen running about the villages, in all of which there are farm-yards.' He is here speaking of the parts which have been colonised; and to this report we may add from Dobell, that 'the horses on this step are small in appearance, resembling those of the Yakuts, but full of spirit and vigour, and there is no part of Siberia where one is conveyed with so much swiftness as over Baraba. We made, whilst on it, from 265 to 280 versts (179 to 185 miles) in four-and-twenty hours, stopping twice a day, an hour and more at each time.' Pike are taken in large quantities in the lakes, and after being dried in the sun, are exported to the adjoining provinces. The step contains seven volastes, or places with markets, and twenty-four villages.

BARA'BRA, or BERA'BERA, is the general name by which the natives of Nubia are designated in Egypt, although in their own country they call themselves by the names of Nouba, Kenous, &c., according to their respective tribes. The word Berábera, says Burckhardt, is the plural of Bérberi, and apparently derived from Berber, the name of a Wadi or district of Upper Nubia, situated on the right bank of the Nile, below the confluence of the Atbara, and about the 18th degree of N. lat. The district of Berber comprises four villages—Ankheyre, Goz el Souk, Goz el Funnye, and El Hassa. 'The Egyptians, seeing traders of the same complexion coming both from Berber and from Ibrim, have applied the same name to both people.' (Burckhardt's *Travels in Nubia.*) The inhabitants of Berber are Arabs of the tribe of Meyrefab, which tribe inhabits several other districts in the neighbourhood. The chief of the Meyrefabs, called Mek (an abbreviation of Melek or king), is, or rather was, in Burckhardt's time, appointed from among themselves by the king of Sennaar. Cailliaud, in his *Voyage à Meroë*, falls into the mistake of calling Barábras or Barbarins exclusively the people of Lower Nubia, who are nearest Egypt, in contradistinction to those of Barbar or Berber, the district already mentioned in Upper Nubia. He says that Barbar is a generic name, and that Barábra is on the northern frontiers of Barbar. But in these matters the statements of Cailliaud are very loose, and his information, although valuable in other respects, must be considered as inferior in accuracy to that of Burckhardt.

The four villages of Berber are all about half an hour's walk from the Nile, and are situated in the sandy desert on the borders of the arable soil. The houses are built of mud or of sun-baked bricks. Each habitation consists of a large yard, round which are the apartments, all on the ground floor. Two of the apartments are generally inhabited by the family; a third serves for a store room; a fourth for the reception of strangers; and a fifth is often occupied by public women, of whom there is a great number in Berber. The rooms have seldom more than one small window; the doors have wooden locks and keys, as in Egypt. The chief article of furniture is a sofa or bedstead, the seat of which is made either of reeds or of thin stripes of ox leather. The honoured stranger has always one of these sofas for his accommodation. Mats made of reeds are spread in the other rooms; and over these the natives spread at night a carpet made of pieces of leather sewed together, on which they sleep. The common articles of food are dhourra, milk, and butter. The women prepare the intoxicating drink called bouza, which is made of fermented highly-leavened dhourra bread. The people of Berber rear a large quantity of cattle which they pasture in winter and spring in the mountains of their neighbours the Bishareen, who live eastward of Berber, towards the Red Sea. Berber is a principal mart for the trade of Sennaar and other southern countries with Egypt, as the caravans pass through it. Many of the Berber people visit Egypt for the purpose of trade. They are a handsome race, of a dark red-brown colour; the men are taller and stronger than the Egyptians. Burckhardt gives a very bad account of their morals. Berber was occupied in 1821, like the rest of Nubia, by the arms of the Pacha of Egypt, under whose power it now remains. [See NUBIA.]

BARAHAT, the modern capital of the Rajah of Gurwal, is situated on the north-west bank of the Ganges in Northern Hindustan, in 30° 45′ N. lat., and 78° 22′ E. long. This town suffered very severely in 1803 from an earthquake, in which 300 of the inhabitants were killed. The effects of this disaster are still visible, although the place is now in a much more flourishing condition than it exhibited for many years after the earthquake. It was described, in 1815, as having not a dozen houses standing in a properly habitable condition, and as being almost buried in a jungle of rank weeds. At a bend of the river, a short distance below Barahat, is a hanging bridge of ropes, over which is the direct road to Serinagur, the former capital of the province, from

which it is distant 48 miles in the direction of N.N.W. The natives who make the pilgrimage to Gangoutri, in the Himalaya mountains, where the Ganges first appears, are accustomed to make some stay at Barahat. (Hamilton's *East India Gazetteer.*)

BARALIPTON. [See SYLLOGISM.]

BARANTSCHINSK or BARANTSCHINSKOI ZAVOD, a mining town in the Russian government of Permia, on the western side of the great metalliferous chain of the Ural Mountains, commonly called the Ekaterinenburg chain; it is situated on the Targil, and within the Permian circle of Verchoturia, which, according to Georgi, lies between 57° 50′ and 61° N. lat., and 56° 20′ and 60° 20′ E. long. The iron-mines near this place, to which it is indebted for its prosperity, belong to the crown, and were opened in 1746; they employ 280 head-workmen, having others labouring under them: the ores yield from twenty-five to sixty per cent. of pure metal; and their annual produce is estimated at 3750 tons of raw, and 150 tons of malleable iron.

BARANYA, a province (*comitat*) in the south-western part of the kingdom of Hungary, lying between 45° 33′ and 46° 20′ N. lat., and 17° 10′ and 19° E. long., bounded on the south by the Drave, on the east by the Danube, on the north by the circles of Sümeg or Somogy, and Tolna, and on the west by part of the former of those circles. It contains about 1920 square miles, and presents an agreeable alternation of hills and valleys in the northern and midland districts, from the numerous arms of the Styrian range by which it is intersected in those quarters: the vale of Fünfkirchen in particular is a delightful country. There is a range of heights also in the east of Baranya, stretching between Monostar and the Danube, to which the name of Szöllös has been given, on account of the multitude of vineyards on their acclivities. The plains below them, as well as those about Mohács and the large swampy island of Mohats or Margitta, which is formed by two arms of the Danube, and comprehended in this circle, are among the most extensive levels in Hungary. The south-easternmost part of Baranya, more particularly that portion of it which lies next the confluence of the Danube and Drave, is covered with morasses. Independently of these great rivers, the province derives much advantage from the waters of the Karasitza and Okar or Okor, the former of which flows southwards to Luts, and thence takes a north-easterly direction until it falls into the Danube near Batina; the latter, which is ultimately called the Oravitza, runs westward in a line nearly parallel with the Drave, and is frequently lost among the swamps which it crosses. In order to draw off the waters which inundate the lands adjoining the Karasitza, Duke Albert of Saxe Teschen, a considerable landed proprietor in these parts, made a canal twenty two miles in length, and from sixty to one hundred and ten feet in width, by which he recovered above 8000 acres of pasture ground. The natural fertility of Baranya renders it one of the most productive regions in Hungary. Lichtenstein, indeed, tells us, that out of its whole surface of 1,228,800 acres, the quantity turned to account, even in the year 1790, was 1,019,300 acres, of which 82,910 were occupied by vineyards; and we learn from another source that 158,970 are cultivated as arable land. The climate, with the exception of that of the swampy districts, is said to be healthy, but the winds and weather are liable to great variations. Baranya grows excellent wheat and most other kinds of grain, as well as much tobacco; but the cultivation of cotton, which was attempted a few years ago with some success, has been abandoned. It produces considerable quantities both of red and white wines: of these, the sort produced on the Villany soil, north of Siklós, is much prized by the epicures of Vienna; and next to it, the growths of Bodoly, Kisfalu, and Fünfkirchen. Meadow-lands and pastures are abundant; a plentiful supply of timber is obtained from 380,000 acres of woodland, on which the oak predominates; of the fruits which it produces, many afford palatable wine; it yields sweet chestnuts, and asparagus grows in a wild state. Its woods afford immense crops of acorns, by which thousands of swine are maintained; it is well provided with horned cattle, but scantily with sheep; the breed of horses, particularly that of the Mohács Island, is small but mettlesome; and the Danube and other rivers afford fish in abundance, among which the carp, pike, and sturgeon are most noted. The mineral productions of Baranya consist of limestone, marble, porphyry, mill-stones, slate, alum, and coals; the coals are raised near Fünfkirchen, Komló, and Vasas. Some glass is manufactured. The population, which was 183,243 in 1787, 193,313 in 1805, and 213,573 in 1828, is estimated at present at 225,000: of these about 170,000 are Roman Catholics, and about 22,000 Protestants; the remainder are about 1500 Jews and Greeks. Baranya is divided into six circles, viz.—Fünfkirchen (with the chief town and capital of the province of the same name—in Hungarian, 'Pecs'), St. Lorintz (chief town St. Kiraly), Siklós (chief town same name), Baranyavár (Bolly), Mohács (chief town same name), and Metvek (Petsvár). It contains one free town, 11 market-towns, 341 villages, and 22 prædia, or independent farming colonies. The town and domain of Bellye, which extends over an area of 305 square miles, and has 28,000 inhabitants located in 35 villages, &c., and on the improvement of which its late possessor, the Duke of Saxe-Teschen, expended considerable sums of money, now belongs to the Archduke Charles; several colonies of Germans have been settled upon this property, particularly in the vicinity of the beautiful village of Albertsdorf; and the esteemed red wine 'Villany' is grown near a village upon it, from which the name is derived. A Roman town, supposed to have been Quadriburgum, is said to have stood on or near the site of Baan, on the northern side of the Szöllös, where ruins of buildings, vases, and carved stone-work with Roman inscriptions, amongst which the name of Quadriburgum occurs, have been discovered. Near Batina on the Danube, where the Aureus Mons is supposed to have been situated, a number of Roman and Turkish coins have been likewise found.

BARAS KHOTUN, or BARS KHOTAN (on D'Anville's *Map of the Chinese Empire* called Par Hotun, on Grimm's *Atlas of Asia* Para Kotun), the city of the tigers, are the ruins of a large town on the banks of the Kherlon or Kheroolun, in the country of the Mongols; they lie according to Father Gerbillon, the only European who ever visited them, in 48° N. lat., and 115° 12′ E. long. When this traveller passed the river near these ruins, they consisted of extensive remains of mud walls, and two pyramids in a state of decay. Du Halde thought that the town had been built by the great emperor Kublai, but the German translator of the Ssanang Ssetsen, or the history of the Mongols, supposes with more reason, that this town was built about the middle of the fourteenth century, when the descendants of Tshenkis khan were expelled from China and retreated to their antient territories, the great desert of Gobi. At that time the Khagan, or Mongol Emperor Toghon Timur, gathered the Mongols who had escaped from the fury of the Chinese, and after uniting them with those who had remained in the desert, erected this town as the future seat of their empire, and himself died there in 1370. At that time it was an extensive town, nearly seven miles in circumference. Nothing certain is known respecting its destruction. Timur's son transferred the seat of the empire to the antient town of Karakorum, farther to the west, and this circumstance, combined with the internal wars which in the fifteenth century divided the Mongols, seem to have brought about its abandonment and final destruction. It appears to have received the name of 'The City of the Tigers' from the roaring of these animals, which was considered a favourable prognostic by the Mongols. (Du Halde; Ritter's *Asia*.)

BARATIER, JOHN PHILIP, born in January, 1721, at Schwabach, in the Margraviate of Ansbach, was the son of Francis Baratier, pastor of the French Protestant Church of Schwabach. His father, who was a man of much information, devoted all his leisure time to his son's education, which he conducted not as a task, but as an amusement. At four years of age the child spoke Latin with his father, French with his mother, and German with the house servant. Books of prints, with the explanations in these different languages, were put into his hands, which he translated without having learned anything of grammar. Between four and five years of age he began to study Greek, and in fifteen months was able to read the Scriptures in that language, and to translate them into Latin. Towards the end of his sixth year he began Hebrew, in the study of which he spent three years. He then plunged into Rabbinical literature, and read with great avidity the books of the Cabbalists, Talmudists, commentators, &c. At nine years of age he made a dictionary of the most difficult Hebrew and Chaldaic words. He next undertook the transla

tion of the travels of Benjamin of Tudela, a Hebrew writer of the twelfth century. Two Latin translations of this work, one by Arias Montanus and the other by Constantin Lempereur, Leyden, 1633, were found to be incorrect. Baratier wrote his in French, and added to it copious notes, and eight dissertations at the end, which are more interesting than the text itself. The subjects of these dissertations are the following:—1. 'On the person of Benjamin and on his work.' Baratier is decidedly of opinion that Benjamin did not travel over the countries which he describes, 'from Spain unto China,' but that he acted merely as a compiler of the accounts he gathered from others, and especially from his countrymen, who were scattered all over the world. 2. Baratier's second dissertation is on the caliphs of Bagdad and their succession. 3. On the government of the Jews in Judæa. 4. On the authority of the chiefs of the Jews after their dispersion in various countries. Dissertations 5, 6, and 7 are on the kingdoms and empires which the Jews have pretended that they possessed in various parts of the world, and their stories and romances on the subject. 8. On the ten tribes of Israel, and the place of their transportation. These are all curious subjects to be treated by a child eleven years old. He finished his work in about six months in 1732, but it was not published till 1734, in two vols. small 8vo, Amsterdam. After this Baratier turned his attention to theological studies, and especially to the Greek Fathers and the early Councils. After some time he undertook to refute Samuel Crellius, a celebrated Unitarian divine, who had written a book styled Artemonius. The title of Baratier's reply will show the subject of the controversy:—*Anti-Artemonius, seu initium Evangelii S. Johannis Apostoli ex antiquitate ecclesiastica adversus L. M. Artemonium Neo-Photinianum, Criticam vindicatum atque illustratum; cui in fine accedit dissertatio de dialogis tribus, vulgo Theodoreto tributis.* Nuremberg, 1735. Frederic William, King of Prussia, having appointed Baratier's father to the French Protestant church at Stettin, the family left Schwabach in the beginning of 1735. In passing through Halle, young Baratier, whose fame had long before reached that university, was made Master of Arts, after undergoing an examination and sustaining a public disputation. On his arrival at Berlin the king sent for him, and was delighted with his conversation. He had him repeatedly at the palace, and made him presents of books and money. The Royal Society of Sciences at Berlin named Baratier one of its members. The king urged upon both the father and son the propriety of the latter applying himself to some regular profession, and he suggested that of the law. In order to facilitate this he altered the destination of the elder Baratier, and appointed him to the French church of Halle, and granted the son a pension of fifty rix dollars a year during the time he was to study at that university. The family therefore returned to Halle in April, 1735. During the next four years Baratier attended the courses of the four law professors of civil, canon, public, and feudal law. He followed his legal studies as a matter of duty, without any particular inclination for them, with the exception of public law, in which he seemed to take an interest. He at the same time found leisure to pursue his more favourite studies. He had begun a 'History of the Heresies of the Anti-Trinitarians,' which he left in MS. Several dissertations also on various subjects of philology, history, and antiquities, were inserted in the 'Bibliothèque Germanique.' The last work he published was on the succession of the early bishops of Rome: *Disquisitio Chronologica de Successione antiquissima Episcoporum Romanorum, inde a Petro usque ad Victorem*, 4to. Utrecht, 1740. This was the beginning of a great work which he designed on the history of the first centuries of the Church. He also began a History of the Thirty Years War.

Baratier's chest was naturally weak: a cold which he took brought on an obstinate cough, and in October, 1739, he spat blood. He passed the following winter, which was a severe one, in-doors, but his constitution was evidently worn out. In September, 1740, he became much worse, his weakness was extreme, and he could no longer read, which was to him the greatest privation. On the 5th of October he expired in his arm-chair, at the age of nineteen years and eight months. He had been long reconciled to the idea of death, and looked on the world as a stage upon which every one was called to act his part for an allotted period. He also felt at times the unsatisfactory nature and uncertainty of human knowledge, and often expressed his disappointment at finding so little to be depended upon in so many works which he had read: the more he strove after truth the farther it seemed to recede from him. His morals were pure, his habits frugal and abstemious, and his manners occasionally boyish. He lived to the last with his father and mother, to whom he was tenderly attached. Though not fond of play and amusements, he was cheerful and lively. The life of this extraordinary boy was written by Mr. Formey, from the materials furnished by his father, 12mo. Halle, 1741, and a second edition was published at Frankfort and Leipzig in 1755. At the end is a long catalogue of the numerous works which he left in MS., mostly unfinished.

BARB, the name of a noble breed of horses reared by the Moors of Barbary and Marocco, and introduced into Spain during their dominion in that country, where, however, it has been suffered to degenerate greatly since their expulsion. The noble race of Barbary horses which we commonly call barbs, are of rare occurrence even in their own country, where the tyranny of the governors holds out no inducement to private individuals to rear an animal of which they may be deprived without scruple or compensation by the first man in power who happens to fancy it: it is only among the wild nomadic tribes of the desert, whose roving habits and inhospitable country place them beyond the control of the ordinary powers of the state, that this breed exists in perfection. The common horse of Barbary is a very inferior animal, which, if originally derived from the same source as the noble race of barbs, has greatly degenerated. In the beauty and symmetry of their forms, however, even the latter are far from excelling their valuable qualities, and in these they are perhaps unequalled by any other breed in existence; are unrivalled speed, surprising bottom, abstinence, patience and endurance under fatigue, and gentleness of temper. Their points would not please the critical eye of a member of the Jockey Club; the head is large and clumsy, the neck short and thick, the chest broad and powerful, yet the body and legs are so long and slender as to resemble those of a greyhound, and form a perfect contrast to the rest of the animal. But the Moors do not regard the external appearance of their horses so much as their temper, speed, and capability to endure fatigue; and the animals which possess these valuable qualities are cherished with all the kindness and attention that are bestowed on children. Their mode of treatment is very different from that practised in Europe. They are very early accustomed to the saddle, are mounted at two years old, and have their manes and tails cropped till the age of six, under the supposition that it adds to their strength and bottom. After this period they are never dressed, nor are their manes and tails combed: if dirty they are washed in the next stream, and some are even said to be offended by Europeans patting their horses with the palm of the hand, from an apprehension of its injuring their coat. They are never castrated, nor have the Moors the bad taste to seek to improve upon nature by cropping the ears and tails of their horses, as is practised by some nations: a Mussulman will neither mutilate nor sell the skin of 'the beast of the prophet,' the noblest of animals. The horses alone are used for the saddle, the mares being kept for breeding, except among some of the predatory tribes of the Desert, who find that the neighing of the horses is apt to betray their approach, and give notice of their coming to the caravans which are the objects of their attack. Walking and galloping are the only paces which these animals are allowed to practise, and it is even considered vulgar to trot or canter. Generally speaking, the Moors avoid giving their horses violent exercise, or overheating them, except upon extraordinary occasions, and among the Desert tribes, it is only in their cavalry exercises, such as throwing the lance, &c. that their speed is at all put forth. On these occasions, however, they are not spared, and it is surprising with what rapidity and precision they perform the different evolutions. These, indeed, are not so complicated as the tactics of more civilized nations, but they are much more severe upon the cattle, and would soon break down the best of our European breeds. The great exercise of the Moorish cavalry consists in galloping their horses at the very height of their speed for the distance of about a quarter of a mile, and then making them stop suddenly short, while the rider delivers his spear or fires his musket; and of this amusement the people are so ridiculously fond, that they frequently continue it for hours together without a moment's intermission to breathe or change

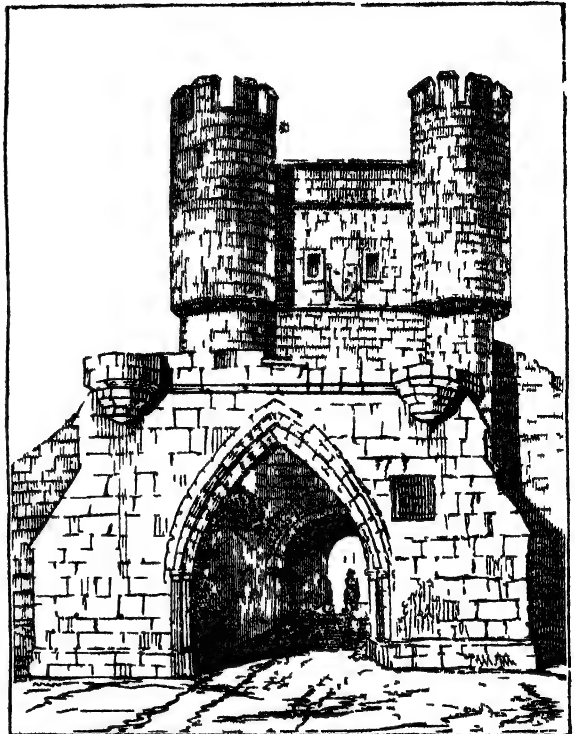
their horses. Yet notwithstanding such violent exercise, very little care is afterwards taken of the horses; still they are said to be long-lived and remarkably free from diseases. Such distempers as farcy and glanders are unknown; spavin and mullender are of very rare occurrence.

The Moors never make hay, but feed their horses upon chopped straw and barley, which they eat out of a nose-bag put over their heads, as is the custom in England; in spring they are chiefly fed upon grass. In the stables there are no mangers, but the horses are fastened by means of two iron pins driven into the ground, one before and the other behind, to which the fore and hind-legs are respectively fastened in such a manner as to prevent the animal from moving more than a foot either backwards or forwards. their collar is also made fast to the front pin, which is provided with a ring for that purpose, and they eat their provender off the ground. Formerly it was the practice for the Moors, in shoeing their horses, to cut off the front part of the hoof; a flat shoe of a triangular shape was then put on, with one of the sides in front, and the other two nearly meeting in an acute angle behind the frog but this unnatural mode of disfiguring these noble animals was put an end to about the year 1700, by an order of the Emperor Muley Ishmael, who commanded that thenceforth all his subjects should, *upon pain of death*, shoe their horses with round shoes. The Berbers and Kabyles, the aboriginal inhabitants of the country between the Sahara and the shores of the Mediterranean, and who are now for the most part confined to the mountainous and most inaccessible districts of North Africa, never shoe their horses at all yet so hardy are these animals, and so much tougher are their hoofs than those of our own horses, that Windhus who, in the beginning of the last century, accompanied a British embassy to the court of the Emperor of Marocco, and who has left an interesting account of his journey, assures us that he saw one of them which had travelled fifty miles without resting, and that though he had been twice during the journey obliged to cross a mountain full of rocks, yet it was not perceived that he had the least crack in his hoof, nor did he make any complaint of his feet.

There is a particular breed of the noble barbs, called *Sh'rubah Er'reeh* (literally Wind sucker), or the Desert Horse, which is only found among the tribes of the Sahara, and which, when transported beyond the sands of the Desert soon languishes and dies. The fleetness, temperance, and endurance of this animal, if we are to believe half the stories related by travellers, almost surpass the bounds of credibility. 'When thou shalt meet a sh'rubah er'reeh,' says a Moorish proverb, 'and say to his rider, "Salam Alikum," before he can answer "Alikum Salam," he will be far from thee, for his speed is like the whirlwind.' By the assistance of this animal, or of the *Herie*, or Desert Camel, the Arab can, upon an emergency, cross the Sahara in a short time; but so amazingly rapid is the rate of travelling, that, as we are credibly informed, the riders are obliged to have bandages tied round their loins, breast, and ears to prevent the percussion of the air from impeding their respiration. At the conclusion of the journey, also, it is said that their stomachs are so much relaxed, as to be unable for some time to retain either solid or liquid food. The sh'rubah er'reeh, however, is neither so useful nor so economical an animal as the desert camel, it is true that his speed is greater, but he is neither so abstemious nor so enduring. The herie will travel for fifteen or twenty successive days, and requires but a handful of dried dates in the morning and a supply of water every third day; upon an extraordinary emergency he can even travel for six or seven days without this important element, but the desert horse must have a feed of camel's milk once a day, and for this purpose there must be a couple of female camels wherever he goes. Camel's milk is his only sustenance, and indeed it would be difficult to find him any other in the parched and arid deserts which he inhabits; he does not like wheat, hay, straw, or any other kind of food, and if forced to live upon these substances, soon loses all his valuable qualities. In his native country the desert horse is principally employed for the purpose of hunting the ostrich and gazelle, at which sports he is amazingly expert, nor is there any other being that can equal these animals in speed. When brought to Marocco, as is sometimes the case, these horses soon decline under the change of food and climate. 'Alkaid Omar ben Daudy,' says Jackson in his *Account of the Empire of Marocco*, 'when governor of Mogodor, had two Saharawan horses in his stables; but finding it inconvenient to feed them constantly upon camel's milk, he resolved to try them on the usual food given to Barbary horses. He accordingly had their food gradually changed, and in a short time fed them altogether with barley, and occasionally with wheat and straw, they grew fat, and looked better than before, but they lost their speed, and soon afterwards died, as if nature had designed them to be appropriated solely to that district whose arid and extensive plains render their use essentially necessary.'

BA'RBACAN or **BARBICAN**, in antient fortification, was usually a small round tower for the station of an advanced guard, placed just before the outward gate of the castle-yard or ballium. (King's *Sequel to his Obs. on Antient Castles*, *Archæol.* vol. vi. p. 308.) Whence Spenser, in the *Fairy Queen*, b. ii.

> Within the barbican a porter sate,
> Day and night duly keeping watch and ward.



[Walmgate Bar and Barbican, York. From The History and Antiquities of the Fortifications to the City of York by Messrs Lockwood and Cates, architects. Lond 1834.]

Grose (*Antiq of England and Wales*, vol i pref. p. 5) calls it the first member of an antient castle. He says it seems to have had no positive place, except that it was always an outwork. The term is still preserved in the ruins of different castles, as at Framlingham and Canterbury Castles; and a small stone-work covering the gate of Bodiham Castle, in Sussex, is still called the barbacan. The two round towers at the angles of the barbacan of York were probably connected by a low breastwork over the gate-way. Messrs. Lockwood and Cates consider the whole of the building which projects fifty-six feet from the gate called Walmgate, to be the barbacan.

In cities or towns the barbacan was a watch tower, placed at some important point of the circumvallation. It had sometimes a ditch and drawbridge of its own. (Grose, *Milit. Antiq.* vol. ii. p. 2.) The street of London called Barbican received its appellation from its vicinity to a tower of this sort attached to the city-wall, the remains of which were visible within the last half-century. It is in this sense that Ben Jonson uses the term in his Epithalamion (*Works*, vol. vii. p. 5):—

> That far all seeing eye
> Could soon espy
> What kind of waking man
> He had so highly set, and in what Barbican.

Spelman (*Glos.* in v.) says barbacan was a term likewise used for a hole in the wall of a city or castle, through which arrows and darts were cast out. It also signified a

long narrow opening left in the walls, to drain off the water from a terrace or platform.

The etymology of this word is uncertain. Spelman derives it from the Anglo-Saxon *burge-kening* (*espiall* from the town); Junius from *burh-beacon* (as if it meant the signal-tower): but neither of these compound-words are to be found in the Saxon dictionaries. Indeed Manning, in the Supplement to Lye's Dictionary, expressly says that the word barbican is not Saxon, but derived from the Arabic; first adopted in Italy, and brought to us by the Normans. He says, 'Vox ista minime *Saxonica:* scilicet ab Arabibus primo accersitam, et ab *Italis* acceptam, ad nos deduxerunt *Normanni*.' Its supposed Arabic origin is noticed by Dufresne, *Gloss.* edit. Francof. 1681, tom. i. col. 473.

BARBACANAGIUM, or BARBICANAGE, was money paid to the maintenance of a barbacan or watch-tower. Cart. 17 Edw. III. m. 6, n. 14.

BARBADOES is the most eastern of the Caribbee Islands, and the most antient of the British settlements in these seas. The exact date of its discovery is unknown; but no mention of it occurs prior to 1600. In all probability it was first seen by the Portuguese, in their voyages to and from South America; but the rude aspect of the island, without inhabitants, and destitute of every thing necessary for human accommodation, was ill-calculated to induce them, already well satisfied with their continental possessions, to form any settlement. Being wholly engrossed with the hope of obtaining immediate supplies of gold and silver, they overlooked its commercial situation. That their discovery might, however, be useful to themselves and others touching there, they planted some vegetables, and left a few swine for breeding. From the Portuguese it derived its name, which it is supposed to have obtained from the Indian-fig-trees growing on the island, and which were called by them 'Barbadas,' or bearded.

The first English ship known to have touched at the island was the Olive, in 1605, on her return from Guinea: part of the crew landed, erected a cross, and took possession in the name of the king, inscribing on a tree 'James, King of England and of this Island.' Although they found a number of Indian implements, it appears that the island was only occasionally visited by the Caribbs of the neighbouring islands, for the purpose of hunting, fishing, or of procuring clay for the manufacture of domestic utensils.

For some years Barbadoes appears to have been no more thought of, till a favourable report reaching Sir William Courteen, a merchant of London, he formed the project of making a settlement on the island; and Lord Ley, afterwards Earl of Marlborough, obtained a grant of it from James I., for himself and his heirs in perpetuity. This did not prevent the prosecution of Courteen's design, who, under the sanction of the patentee, fitted out at his own expense an expedition, furnished with every requisite for establishing a colony. One ship only arrived, and thirty men landed in 1624 on the spot which had been taken possession of by the Olive, and laid the foundation of a town, which, in honour of the reigning king, they called James Town.

The Earl of Carlisle, who proposed to erect all the Caribbee Islands into a palatinate, asked the king to grant him a patent; which, however, was strenuously opposed by Lord Marlborough, as affecting his prior claim to Barbadoes. This dispute continued till 1627, when the latter waived his right on condition of the Earl of Carlisle's agreeing to pay him and his heirs for ever the sum of 300*l.* per annum. By the patent, Lord Carlisle was empowered to publish such laws as he or his heirs, with the consent, assent, and approbation of the free inhabitants, &c., shall think fit and best. In the mean time, the settlers were diligently, though slowly, establishing themselves. Fortunately the woods, with which the island was thickly overgrown, afforded lignumvitæ and fustic; these became articles of immediate export to England, and procured in return such commodities as were most wanted.

Courteen, the original founder of the colony, finding himself entirely deserted by his former patron, sought the protection of the Earl of Pembroke, who obtained, in 1628, from Charles I., a grant of the island, during the temporary absence of Lord Carlisle. On the return of the latter, he soon procured the revocation of Pembroke's patent and his own reinstatement in possession, to secure which he contracted with a company of nine merchants of London, to grant them 10,000 acres of land, on condition of receiving from each settler forty pounds of cotton annually, and with the privilege to the company of appointing their own governor, who received full powers from Lord Carlisle. A native of Bermuda, Charles Wolferstone, was appointed, who, with sixty-four persons, landed in July, 1628. Each of the settlers was entitled, on his arrival, to 100 acres of land. Their first care was to build houses for their stores, &c., which obtained the name of Bridgetown; and Wolferstone having appointed a council, summoned before it the colonists sent out by Courteen, whose settlement was by this time in a flourishing condition. They made their appearance, but utterly disclaimed all dependance on Lord Carlisle, and refused to submit to his authority. Both parties now prepared for hostilities, but this extremity was prevented by their agreeing to refer to the decision of the two noblemen at home. These appealed to the king, who ordered a second patent, dated April, 1629, confirming, in the most unequivocal manner, to Lord Carlisle the original grant. Having thus overcome all opposition, this nobleman appointed Sir William Tufton commander-in-chief of the island, who, on his arrival in December, 1629, appointed a council, issued grants for nearly 16,000 acres of land, confirmed those already given, and divided the country under cultivation into six parishes. He was unexpectedly superseded by Captain Hawley, who appears to have used some unfair means to prejudice Lord Carlisle against Tufton; but that nobleman, suspecting that the revenue he derived was not proportionate to the increasing prosperity of the island, recalled Hawley, and in 1645 the government devolved on Philip Bell, who devoted his whole attention to the improvement of the internal administration.

The civil war and religious dissensions which were raging in England contributed greatly to the rapid population of the island, and many royalist families found an asylum in it. The leeward part seems to have been first and best settled. Many of the planters had become rich; and Lord Carlisle having little leisure to attend to the affairs of the colony, his claims, amid the confusion which reigned at home, were silently relinquished. Assisted by a council of ten persons, Bell divided the whole island into eleven parishes, and appointed a minister to each; he instituted a general assembly, composed of two deputies from each parish; devoted the produce of the excise for seven years to fortifying the coasts, and augmented the militia to 1000 cavalry and 10,000 infantry. The population had in 1647 increased to 50,000, and the value of land had of course risen in proportion. An unrestricted intercourse existed with the Dutch very favourable to the Barbadians, but money was so scarce, that barter of commodities was often necessarily resorted to, and all fees and emoluments were paid in kind.

When and whence the sugar-cane was first imported is uncertain, but in 1647 Ligon speaks of the art of making sugar as a business recently begun and little understood; and it is to the Dutch that we are indebted for the first instruction in the culture of the plant, and the manufacture of this valuable staple.

In 1649 the Earl of Carlisle, son and heir of the original patentee, revived his claim, and entered into a treaty with Francis Lord Willoughby, granting him a lease of twenty-one years, on condition of receiving half the profits. Lord Willoughby, by way of adding strength to this authority, procured from Charles II., then in Holland, a royal commission as governor of the island; and on his arrival at Barbadoes, his first step was to proclaim Charles as king; he then convened the legislature, who acknowledged his sovereignty, and raised a body of men to compel the neighbouring islands to submit to the royal authority.

Meantime, however, the Parliament determined on punishing the refractory colonists, and sent a large force out for that purpose; and still further to oppress them, they prohibited the ships of any foreign power from trading to any of the British plantations without a license. This law, which was levelled as much against the growing prosperity of the Dutch, as against the planters, gave rise to the Navigation Act of this kingdom. The Barbadians being for the most part sincerely attached to the royal cause, denied the authority of the Parliament, and protested against the above act, which they determined to resist. Sir George Ayscue, who commanded the Parliamentary Forces, found great difficulty in bringing the island under subjection, and he would probably have failed, had it not been for a party less solicitous about their public principles than their

private interests, who, fearing the destruction of their property, deserted the royal cause, and thus compelled Lord Willoughby to treat for a capitulation. After the surrender of the island, in March, 1652, the Government was placed in the hands of the victorious admiral, who soon resigned it, preferring to go in search of other conquests; and Barbadoes enjoyed tranquillity till the Restoration. The colony had hitherto flourished, but the conquest of Jamaica tended to diminish the population of Barbadoes, as many opulent planters removed to this island, where land was procured with less difficulty.

Notwithstanding the prohibitory act, the Barbadians had contrived to maintain a friendly intercourse with the Dutch, which from motives of policy had been connived at by the governor. Their consternation and resentment were naturally roused at finding a measure which had been inflicted on them as a punishment for disowning the authority of the Protector, confirmed by the king, on his restoration; and, to add to their calamities, they were alarmed as to the legality of the tenure of their estates. Lord Willoughby having only eight or nine years of his lease unexpired, applied to the king for a renewal of his commission, intending to enforce his claims under the proprietary grant. The planters, perceiving that they were held by these two powerful noblemen as tenants-at-will, appealed to his Majesty; they pleaded their being British subjects, insisted that the grant to Lord Carlisle had been surreptitiously obtained, and proposed that the king should permit them to commence a suit in his name, but at their own expense, in the Court of Exchequer, to set the grant aside, or that he would resume the sovereignty of the island, and leave the claimants to seek their remedy against the planters by course of law. The matter was laid before the Privy Council, who decided that Lord Carlisle's patent, having been obtained by a misrepresentation of facts, was null and void.

The Earl of Carlisle, dying in the interim, had bequeathed his West India property to the Earl of Kinnoul. His creditors brought in demands to the amount of 80,000*l.*; besides which the heirs of the Earl of Marlborough claimed the annuity of 300*l.*, considerable arrears of which were due, and Lord Willoughby also demanded the moiety of profits which should accrue during the unexpired term of his lease. To satisfy these claims, Mr. Kendall, on the part of the planters, proposed an internal tax of 4½ per cent. on the exportation of all commodities of native produce, the surplus to be at the king's disposal. These terms were readily acceded to, and arrangements having been made for the satisfaction of all claimants, the proprietary government was to be dissolved; but the planters denied the authority of Mr. Kendall to make such an offer, and Lord Willoughby was sent back to Barbadoes, where, after much argument, entreaty, and menace, he succeeded in obtaining its confirmation by the Assembly in August, 1663.

Next year, war having been declared against the Dutch, Admiral De Ruyter was sent to take possession of Barbadoes, but, after an ineffectual attempt, he was obliged to abandon the enterprise. Lord Willoughby resolved to return the visit, and with an expedition fitted out in the island he took St. Lucia, but perished in a hurricane off Guadaloupe, and the command devolved on his brother. In 1668 a destructive fire laid nearly all Bridgetown in ashes. In 1669 Barbadoes was made the head quarters of a more extensive government called the Windward Islands, which was defined to include all the islands to windward of Guadaloupe; that and the other islands of the Caribbean chain having been formed into a distinct command under the title of the Leeward Islands.

In August, 1675, Barbadoes was visited with a most awful hurricane: neither tree nor house was left standing, except a few sheltered by some hill or cliff, and the whole face of the country exhibited one scene of desolation, while the coast was strewed with wrecks, and many lives were lost at sea and on shore. This was thought by the inhabitants a favourable moment to obtain relief from their oppressive impost, by petitioning his majesty to that effect, but he was deaf both to their complaints and entreaties. Instead of relief, their freedom of trade received a severe blow by the establishment of the Royal African Company in 1678, for the exclusive supply of negroes to the colonies; and in 1685 parliament laid a tax of two shillings per cwt. on muscovado, and four shillings on refined sugar. Three years after, the island was thrown into a state of great alarm by the report of a projected insurrection of the slaves, which, however, was happily prevented by a timely discovery of the plot: the consequence was the passing of a code of laws bearing severely on the negroes.

On the accession of King William, the Barbadians, in conjunction with Colonel Codrington, governor of the Leeward Islands, voluntarily undertook an expedition against the French in these seas, in which they greatly distinguished themselves in several very gallant exploits. The calamities of war were in 1692 aggravated by the ravages of pestilence and an insurrection of the negroes; nevertheless the Barbadians sent a thousand men to assist in the attack upon Martinique.

A long period of comparative quiet and prosperity ensued, but so great was the scarcity of money, that in 1705 the Assembly passed an act to allow 65,000*l.* paper credit, a measure which was severely censured in England, and repealed again immediately. After this followed an interval when the reduction of the governor's salary caused much bad feeling between that functionary and the House of Assembly, and party-spirit ran high; notwithstanding the anarchy and confusion which had prevailed, many judicious laws were passed. As the colonies had not been formed into dioceses, the bishop of London obtained from the king the authority to subject them to his spiritual jurisdiction, and to establish ecclesiastical courts; but the Assembly of Barbadoes enacted that no ecclesiastical law should have the power of enforcing punishment on the island. Effective measures were also taken against invasion, by a chain of fortifications from Maycock's Bay to Oistin's Town; and the island was divided into five districts, with a regular war establishment of 200 men each.

Lord Howe's administration afforded the planters some alleviation of the restrictions imposed on their commerce. In 1756 the war which was kindled in Europe afforded the Barbadians an opportunity of showing their zeal and fidelity, by furnishing 600 white volunteers, with negroes for laborious service, besides supplies to the fleet under Commodore Moore, destined to attack Martinique, and to the forces besieging Guadaloupe. About this time the Stamp Act passed in England, and was submitted to merely with a remonstrance against its injustice: during the time, however, that it was in force, 2500*l.* were collected in the island. Taking advantage of the absence of the governor, the Assembly, in 1766, demanded from the president of the council (upon whom the government devolved during the absence of the governor) the following privileges: 1. Exemption from arrest for themselves and servants: 2. Liberty of speech: 3. Access at all times to the king's representative. In the same year two dreadful fires, one in May and the other in December, reduced the capital to ashes, and the Assembly were obliged to apply to the British parliament for a grant in aid of rebuilding it; but after four years they only obtained the sum of 5000*l.* Within ten years Bridgetown had four different times suffered a similar disaster.

Mr. Hay, who assumed the government in 1773, was very anxious to improve the commerce of the island, and recommended that application should be made for its establishment as a free port; the minister consented to granting free trade to the Spaniards, but owing to the tardiness of the agent, the opportunity was lost, as the Jamaica bill had in the mean time passed. The war between Great Britain and her North American colonies produced in Barbadoes the most alarming apprehensions of famine, but they were relieved by a plentiful supply of provisions from England, which were consigned to the governor to be sold at prime cost. This supply was accompanied by a demand for the support of such rebel prisoners as should be brought to Barbadoes, which was rejected by the Assembly.

The declaration of war with France and the loss of Dominique, St. Vincent, and Grenada, awakened the fears of the legislature, but they found some difficulty in raising a capitation-tax of fifteen-pence on slaves, to put themselves in a better posture of defence. A series of physical as well as moral and political evils had brought the island to such a state of poverty, that the Assembly thought fit still further to reduce the salary of the governor, a circumstance which sowed the seeds of dissension and led to many unhappy results. To add to their calamities a tremendous hurricane, which, commencing on the 10th of October, 1780, continued to rage with unparalleled violence for forty-eight hours, threatened them with universal ruin: the whole island was devastated, and its unsheltered inhabitants were reduced to the last extremity of misery and despair. The

loss of human life was estimated at 3000, and the destruction of property at 1,018,928*l* sterling Those who escaped were exposed to dangers scarcely less imminent, from the deprivation of their internal resources, the prospect of famine presented itself, and the slaves, instead of endeavouring to save, were actively engaged in plundering the remnant of property which the hurricane had spared On this occasion a grant of 80,000*l* to the sufferers of Barbadoes passed the British parliament, the city of Dublin raised 20,000*l*, and several liberal donations were made by individuals

On the 11th of October, 1785, the following singular phenomenon alarmed the inhabitants several deep fissures appeared in the earth, and some small tenements sunk to a considerable depth; the mansion-house and plantation of Walcots, with the negro huts, sunk into a deep chasm, and were buried with the soil from the neighbouring heights, and in the course of the night the face of the district was completely changed Some cocoa nut trees and even a windmill were gradually removed many hundred yards from their original position

Towards the close of the 18th century laws were passed to encourage the growth of cotton on the island, and for punishing with death persons convicted of cutting and clipping gold coins The extraordinary mortality of the British troops induced the ministry to adopt the scheme of raising negro regiments, a measure which was received with great dissatisfaction throughout the West Indies, and severely commented on in the assembly of Barbadoes where several resolutions were passed in opposition to the proposed organization of these troops nevertheless, the islanders showed proofs of their loyalty in collecting upwards of 1[illegible],000*l* towards the war against the French

During the last war the Barbadians constantly showed their readiness to aid the government both with men and money they remained free from foreign aggression, and no event of importance occurred during this interval The years 1816 and 182[illegible] were marked by violent and organized insurrection of the negroes with burnings, destruction of property, and murder In May 1824, Barbadoes was created a bishop's see, the diocese of which comprehends all the British possessions in the Caribbean chain with Trinidad and British Guiana

The island is subject to periodical hurricanes by which it has frequently suffered On the 11th of August, 18[illegible]1, it was visited by one of a most dreadful and devastating nature, surpassing even that of 17[illegible]0 The appearance on the preceding evening indicated unsettled weather the wind was high and about ten o'clock there fell a shower of rain, succeeded by a calm At midnight came on a strong squall, which was followed by heavy rain and a smart breeze from the N E, the wind then began to increase, and in about two hours blew a tremendous gale, but moderated for a short time it then suddenly became violent again and at three o'clock was a perfect hurricane From this hour to five it raged with unparalleled violence, with lightning at intervals, the houses were levelled to the ground or unroofed, the custom house was blown down all the churches damaged, and those of St Paul's and St Mary's were entirely destroyed The Government House (called Pilgrim) was unroofed, and the governor only saved himself by taking refuge in a cellar The largest trees were torn up from the roots or broken like reeds The wind now veered to east, back to north, and again to north west. Again it shifted and blew fiercely from east, veered to south east, and about six o'clock burst from south west with renewed violence, accompanied by torrents of rain, which continued about two hours Daylight discovered to the terrified inhabitants a most wretched and deplorable scene, the fields were completely changed into a desert, and neither canes, corn, provisions, nor trees were left standing, with the partial exception of some well sheltered spots The loss of life was estimated at 5000 souls, and the destruction of property is incalculable This dreadful hurricane was felt also at St Vincent's, Dominica, and other islands, but with much less severity

In pursuance of an act passed in the Imperial Parliament for the abolition of colonial slavery, the 1st of August, 1834 (the day appointed), was held at Barbadoes as a day of solemn thanksgiving, the negroes attended the places of worship, and the most perfect tranquillity prevailed. In April, 1834, the Assembly passed a bill to abolish the obnoxious four and a half per cent. duties, as a compensation for the loss sustained by the planters by the Abolition Act This bill, however, remains yet without the royal sanction

In this island there is a class of people called the 'Tenantry. By the laws of the colony every estate is obliged to maintain a certain number of whites, in proportion to its extent These people have an indefeasible right for life in a house and garden on the respective plantations The militia is chiefly composed of them and with that exception, they live in a state of complete idleness

The constituent parts of the legislative body of Barbadoes are, first, the governor, who is appointed by and represents the crown, second, the council, a body of twelve, appointed by the king, and, third, the assembly, which consists of twenty two representatives of the people

The governor is styled Excellency, he is captain general, chancellor and vice admiral he has the appointment of the militia and other military officers in the colony, the coroners, captains of the port, and various other civil offices and before the island was made a bishopric in 1824, he collated to all livings, and took probates of wills Judges and justices of the peace are appointed by him, with the consent of the council, and cannot be removed without their concurrence As chancellor he appoints the two masters in chancery and the solicitor general, he has the custody of the great seal, and presides in the courts of error and equity, but as the council are judges in both these courts his vote is of no more weight than that of any other member As vice admiral he is entitled to the rights of jetsam, flotsam, and lagan He can summon and dissolve the assembly, and has a veto on any law In his absence the president of the council is authorized to administer the government with nearly similar powers

The council may be supposed to stand in the same rank in the colonies as the peerage in England, but as the tenure of their office depends in some measure on the will of the governor they do not possess the same independence and although freedom of discussion is expressly granted them, yet it is extremely circumscribed by the presence of the governor With them may originate any bill unconnected with levies or the disposal of public money they also stand towards the governor in the same relation as the privy council do to the king of Great Britain

The Assembly is entirely composed of the representatives of the people annually elected two members being sent by each parish The qualifications for an elector and a member are the same he must be a free and natural born subject of twenty one years of age, professing the Christian religion and owning ten acres of land or a house of the yearly value of 10*l* sterling On their meeting they take the state oaths, and proceed to the choice of their speaker

The judicature consists of five courts of common pleas, to each of which there is a judge and four assistants they commence their sittings in January, and continue them by adjournment every four weeks till September from these courts appeals lie in all causes to the governor and council The Court of Exchequer is held by a chief baron and four puisne barons a court of grand sessions of oyer and terminer, gaol delivery and general sessions of the peace, is held twice a year the chief justice, who is appointed by the governor, is always a member of the council and a judge of one of the courts of common pleas, six freeholders are summoned from each parish, from among whom are selected the grand and petty juries. The sessions court may continue its sittings four days, and possesses power, in all criminal cases, even to the life of the offender in inferior cases the governor may remit the punishment, and even in capital cases he may reprieve till the king's pleasure be known A great objection to the system is, that the judges are generally planters, or merchants, who have not been educated for the bar, and are for the most part without the knowledge requisite to qualify them for such an office

Barbadoes appears quite detached from the Caribbean chain, being eighty miles to the eastward of St Vincent, the nearest island. It lies N W and S E, and is of an oval form, fifteen miles long, and ten broad in the widest part. Nature has fortified its coasts, which are for the greatest part inaccessible to vessels of above fifty tons in consequence of a coral reef which runs off all the eastern and northern side of the island, the other parts of the coast have been fortified at a great expense. The island contains 106,470 acres, nearly all of which are under cultivation the soil

in the lowlands is black, and somewhat reddish in the parts where it is shallow; on the hills chalky marly, and near the sea-shore, sandy; the rock which supplies this soil is a tertiary shell limestone, for an account of which see Nugent's 'Sketch of the Geology of Antigua,' in *Trans. of Geol. Soc.*, vol. v. There are no appearances of volcanic action. The black mould is suited to the sugar-cane, which is as productive here as in any island of the West Indies, except St. Kitt's: the soil is however considered to be exhausted and requires much manuring. The destruction of the woods, though it renders the country more healthful, has diminished the quantity of rain, and thereby been detrimental to the planters. Barbadoes still consumes a considerable amount of English manufactures. Of the exports sugar is the staple, but rum, ginger, cotton, and aloes form considerable items.

The surface of the island is comparatively low with gently undulating hills. The climate, though warm, is perhaps as healthy as any part of the West Indies, and the heat is greatly alleviated by the trade wind, which constantly blows over the island; indeed the longevity of its inhabitants is a proof of its salubrity. But the awful hurricanes with which it has from time to time been visited render the value of property very uncertain. There are several bituminous springs, some of which furnish the green tar that often supplies the want of pitch and lamp-oil. Two remnants of the virgin forest still remain, near one of which is a small pool of water perfectly cold, though from its constant bubbling it appears to be in a state of ebullition: if an ignited match or candle is passed over its surface, the air bursts into flame and shoots its upwards in a quivering column of light, caused doubtless by a perpetual escape of sulphuretted hydrogen gas. One or two solitary specimens may still be seen of the tree which is supposed to have given name to the island: it is covered with an extraordinary mass of twisted tendrils strongly resembling a beard.

Bridgetown, the capital, is situated on Carlisle Bay, at the south-west end of the island; it is two miles in length and half a mile wide. Though irregularly built it contains many very handsome houses, and a large square adorned with a good statue of Lord Nelson, which is a great favourite in the West Indies. It contains a cathedral which is spacious and plain, its towers scarcely rising above the roof for fear of hurricanes, for which reason also the churches are without steeples. Besides the church there are several chapels and a great number of schools for whites and blacks. The council and assembly meet and hold their sittings in the same building with the common prison, and here also the various law courts are held. There are some very excellent literary and scientific societies in the town, and some good libraries. A college was founded by General Codrington, but the funds having been ill applied, what was intended as a university for young men has dwindled into a mere school for a few boys. Altogether there are on the island twenty-three schools, containing 1281 scholars.

There are besides three other towns of smaller note, called Oistins, St. James's, and Speight's; the two former are mere hamlets. Speight's town is however a place of considerable importance. The population of the island in 1830, including whites, free coloured people, and slaves, amounted to 91,887 souls.

The principal and indeed almost the only anchorage is in Carlisle Bay, off Bridgetown, where the merchant vessels load and discharge their cargoes, the sugar being brought from the other parts of the island in small vessels called droghers. Carlisle Bay is quite open to the westward, but sheltered by a projecting tongue of land called Needham's Point from the trade wind and the Atlantic swell, and except in case of a hurricane may be considered a secure port. There is a small bay also off Oistins, where vessels occasionally anchor, as they do off Speight's town.

There are two small streams, besides the Mole which runs through Bridgetown, and the island is generally well supplied with water, but fire-wood is expensive. Stock, vegetables, and fruit are plentiful. The total value of imports into the colony in 1832 was 461,308*l.* sterling money, about one-sixth part of which consisted of codfish, grain, and flour, principally from our North American colonies; the remaining imports were of manufactured goods and plantation stores, chiefly from the United Kingdom. Of the exports sugar is the staple, upwards of 21 millions of pounds, or nearly 11,000 tons, having been shipped from the island in 1832. The remaining exports during that year consisted of arrow-root, coffee, cotton, ginger, molasses, rum, and small quantities of cocoa, logwood, aloes, and hides.

The salary of the governor, including his pay as commander of the forces, and an allowance for table money and servants, amounts to 6200*l.* per annum. Of this amount 2000*l.* 13*s.* 4*d.* is paid by the colony, and the remainder by the home government.

Bridgetown is in 13° 5′ N. lat., and 59° 41′ W. long.

(Poyer's *History of Barbadoes*; *Colombian Navigator*; Bryan Edwards's *West Indies*, &c.)

BARBADOES CHERRY. [See MALPIGHIA.]

BARBADOES FLOWER FENCE. [See POINCIANA.]

BARBARIAN. The Greek term Βάρβαρος (barbaros) appears originally to have been applied to language, signifying a mode of speech which was unintelligible to the Greeks, and it was perhaps an imitative word intended to represent a confused and indistinct sound. (See *Iliad*, ii. 867, and Strabo cited and illustrated in the *Philological Museum*, vol. i. p. 611.) *Barbaros* it will be observed is formed by a repetition of the same syllable, *bar bar*-os. Afterwards however, when all the races and states of Greek origin obtained a common name, it obtained a general negative sense, and expressed all persons who were *not Greeks*. (See Thucyd. i. 3.) At the same time, as the Greeks made much greater advances in civilization, and were much superior in natural capacity to their neighbours, the word in question obtained an accessory sense of inferiority both in cultivation and in native faculty, and thus implied something more than the term *alien* or *foreigner*. At first the Romans were included among the barbarians; then *barbarian* signified all who were not Romans or Greeks. In the middle ages, after the fall of the Western empire, it was applied to the Teutonic races who overran the countries of western Europe, who did not consider it as a term of reproach, since they adopted it themselves, and used it in their own codes of law as an appellation of the Germans as opposed to the Romans. At a later period it was applied to the Moors, and thus an extensive tract on the north of Africa received the name of Barbary. [See BARBARY.]

Barbarian in modern languages means a person in a low state of civilization, without any reference to the place of his birth, so that the native of any country might be said to be in a state of barbarism. The word has thus entirely lost its primitive and proper meaning (*non-Greek* or *non-Roman*), and is used exclusively in that which was once its accessory and subordinate sense of *rude* and *uncivilized*.

BARBAROSSA. [See FREDERIC I., Emperor of Germany.]

BARBAROSSA AROODJE, was born in the island of Metelin (Mytilene) about the year 1474 of Christian parents. His father, who followed the trade of a potter, had a family of three sons and four daughters. The eldest son when twenty years of age went on board a Turkish privateer, embracing at the same time the Mohammedan faith, when he assumed the Turkish name of Aroodje or Oroch. Having served for several years, during which he distinguished himself by his bravery and intelligence, he was appointed commander of a galliot which was fitted out by some speculators at Constantinople for the purpose of cruizing in the Archipelago against the merchant vessels of nations at war with the Porte. He was henceforth styled Aroodje Rais, *i.e.* Captain Aroodje. After he came out of the Dardanelles he told the crew, which was chiefly composed of men of his own choice, that they would have a better chance and be more at liberty, if instead of cruizing in the Archipelago under the eyes of the Sultan's officers they went out into the wide Mediterranean and took their station off the coast of Africa. The practice of privateering on a large scale was not common at that time among the Turks. Having obtained the cheerful assent of his men to follow him wherever he led them, he touched at Metelin, where he found that his father was dead, and had left his family in poverty. Aroodje bestowed some relief on his sisters, and took his two brothers on board. Having met another Turkish galliot, he persuaded the master and crew to cruize in company with him and under his direction. Arriving at Goletta, the harbour of Tunis, in 1504, he was well received by the reigning Bey, Muley Mohammed, as at that time all the Moorish states of North Africa were

under apprehensions from the power of Spain. Aroodje having sailed in his own galliot for the coast of Italy, fell in, off the island of Elba, with two large Papal galleys richly laden, and bound from Genoa to Civitavecchia. The crews of the galleys not expecting to meet with a Turkish corsair in those seas, took no precautions, and let Aroodje approach close to one of them, when he at once gave the order to board, and with little difficulty took possession of a ship much larger than his own. He then manned the prize with his own men and steered towards the other galley, which allowed itself to be surprised in like manner. After this, Aroodje returned to the coast of Tunis with his two prizes. His fame now rose high along the coasts of the Mediterranean, and many Turkish and Moorish adventurers applied to serve under him. In the following year he surprised and took a large Spanish ship with money and soldiers on board. The fort of Goletta was his head quarters; there he disposed of his prizes, paying a tithe to the Bey of Tunis. Having built several more galliots, he assembled a squadron of eight good ships, two of which were commanded by his brothers. He was successful in his cruizes, and in the course of a few years he grew enormously rich. The Christian sailors, whose terror he had become, gave him the name of Barbarossa, from the colour of his beard, which was red; others say from a corruption of the words Baba Aroodje, Baba being a familiar Turkish appellation of respect as well as of attachment, answering to our 'Father.' In 1510 the Bey of Tunis gave him the government of the island of Jerba, which had been attacked shortly before by a Spanish expedition though without success, and accordingly Jerba became Aroodje's head quarters. In 1512, when his squadron consisted of twelve sail, he received a message from the Moorish king of Boojeiah, near Algiers, who had been dispossessed of his town by the Spaniards, and had taken refuge in the mountains. Aroodje having mustered 1000 well armed Turks, sailed for Boojeiah, landed near the place, and being joined by a body of natives, attacked the town. A breach being made in the wall, he led his men to the assault, but found himself vigorously resisted by the Spaniards, and having had his left arm carried off by a cannon ball, he withdrew with his men on board his ships and sailed again for Jerba. On his way he seized a Genoese vessel richly laden, which so incensed the Senate of Genoa, that they sent Andrea Doria with a squadron to attack Goletta, where Aroodje's galleys were lying under the command of his brother Hadher, afterwards famous under the name of Khair Eddin. Doria having landed some troops attacked Goletta by sea and by land, and obliged Hadher to run away, after having sunk six of his galleys. Doria carried away the rest. The two brothers however soon refitted a squadron, and in 1513, Aroodje having recovered from his wound, made a second attack on Boojeiah, but was again repulsed; he then repaired to the harbour of Jijil, in that vicinity, where he found means so to ingratiate himself with the inhabitants, by promises of protection against their neighbours, and by distributing among them some cargoes of corn which he had seized, that they unanimously proclaimed him their sovereign. It had been long the object of Aroodje's ambition to obtain an independent sovereignty on the northern coast of Africa. That country was then in a condition favourable to his views, being divided into a number of petty states, often at variance among themselves, while they were all threatened by the Bedoweens or Berbers of the interior, and by the Spaniards from the sea. The Spaniards were masters of Oran, Boojeiah, and other places; they had also built a fort on the little island opposite the town of Algiers, or Aljezira, from which the town takes its name [see ALGIERS]. They were therefore masters of the harbour, and they obliged the people of the town to pay them tribute. The Algerines applied for protection to a powerful Arab Sheik of the interior, called Salem Aben Toomi, and made him their sovereign. Salem, unable to drive the Spaniards out of the island, applied to Aroodje for assistance. Aroodje at that time, after having defeated and killed the Sheik of Couco, a troublesome neighbour of his new subjects of Jijil, had just set off on another expedition against the little town of Shershel, west of Algiers, where Cara Hassan, another Turkish adventurer and one of Aroodje's former shipmates, had set himself up as an independent chief. Two such men could not long remain in the same neighbourhood. Aroodje came upon Hassan suddenly, and having obliged him to surrender, had his head struck off, and took possession of Shershel. He now attended to Salem's invitation, and repaired with his faithful Turks to Algiers, where he was received with great honour, and lodged in Salem's palace. Here he soon began to assume the tone of a master, while his men lived upon the citizens. Salem, dissatisfied with all this, escaped out of the town and joined his Arab countrymen inland; but Aroodje found means to entice him to an interview, when he treacherously put him to death, and the Turks hoisting [illegible] on the forts and [illegible] of the town, proclaimed Aroodje Sultan of Algiers. This happened in 1516, and was the beginning of the Turkish dominion over Algiers. The tale of Salem's death has been told in various ways; however it is certain that he was got rid of by Aroodje. Several conspiracies were formed against the usurped power of Aroodje, but they all failed, and the conspirators were punished with unusual severity. In [illegible] a Spanish armament came into the bay of Algiers and landed some troops, but a storm dispersed the ships, and the men who had landed were either put to death or made slaves. The mulatto king of Tennes also attacked Aroodje [illegible], but was defeated, and obliged to escape into the mountains, and Tennes submitted to Aroodje.

The next victory of Aroodje was over the Arab king of Tlemsan, the most powerful chief in that country. After [illegible] the people of Tlemsan [illegible] and opened their gates to the conqueror. [illegible] Aroodje's [illegible] lost his life in the expedition. Aroodje now reigned over the greater part of the present state of Algiers, and as far west as the frontiers of the kingdom of Fez. The Spaniards of Oran, alarmed at the [illegible] success of such an enterprising chief, [illegible] reinforcements from Spain, and Charles V. [illegible] men under the Marquis de Comares with [illegible] to drive Aroodje out of Tlemsan. Aroodje had hardly 1500 men that he could depend upon; the country [illegible] him, and he went out of Tlemsan by night with his trusty Turks and his treasures, in hopes of being able to reach Algiers. He was closely pursued by the Spaniards, till he reached the banks of the river Malch, about twenty-five miles north-east of Tlemsan, when he ordered his treasures to be scattered on the way, in hopes of retarding the pursuit of the enemy. Meantime he crossed the river with the advanced party of his men, but the Spaniards fell on the main body on the other bank before they could cross. Aroodje, hearing the cries of his old companions calling to him for assistance, resolutely turned back and recrossed the river, determined to share their fate. He hastily formed them on a rising ground, and fought desperately at their head until he fell covered with wounds amidst heaps of the slain. Few of his men found their way to Algiers to carry the dismal news to his brother, whom he had left in charge of the town. Aroodje, or Barbarossa, as he is generally called, was forty-four years of age when he fell, fourteen years of which he had spent on the coast of Barbary. He left no children. Merciless as he was to his enemies or rivals, and totally unprincipled and reckless in the pursuit of his ambitious schemes, he was not wanting [illegible] [illegible]. He seems to have been really beloved and respected by his attendants, dependants, and fellow soldiers. Haedo, who was at Algiers in the latter part of the same century, renders full justice to Barbarossa's personal qualities, and he had his information from those who had been in their youth about Aroodje's person, and had known him familiarly. The quality which most distinguished him, and which ensured his success, was his extraordinary activity and rapidity of movements, which surprised his enemies before they were prepared to resist him. He was altogether one of the most remarkable adventurers that has ever appeared.

(Haedo), *Topografia e Historia de Argel*; Marmol, *Descripcion de Africa*; Morgan, *History of Algiers*; Laugier de Tassy, *Histoire d'Alger*.)

BARBARO'SSA, KHAIR EDDI'N, brother of the preceding. His name was Hadher, but in the course of his successful career he was honoured by Sultan Solyman with the title of Khair Eddin, *i.e.* 'the good of the faith.' He is also styled by historians Barbarossa II., having succeeded his brother in the sovereignty of Algiers, and being known at sea by the same formidable name. On the news of Aroodje's death, the Turks at Algiers immediately proclaimed his brother. The following year, 1519, a new armament from Spain appeared before Algiers, but it met with the

same fate as the former Many ships were lost in a storm, and a great number of Spaniards were taken prisoners on shore. Hadher, finding himself insecure on his throne, made an offer of the sovereignty of Algiers to Selim I, Sultan of Constantinople, on condition of being himself appointed pacha or viceroy and of receiving a reinforcement of troops from the sultan Selim accepted the offer, and sent him in 1519 his firman of appointment as Pacha or Regent of Algiers, and a body of 2000 janissaries From that time Algiers became subject to the high dominion of the Porte, and the Turkish supremacy over the natives was firmly established In 1530, Hadher, after many attempts took, at last the little fort on the island opposite Algiers, and sentenced the Spanish commander to a cruel death He then joined the island to the mainland by a mole which rendered the harbour of Algiers safe In this labour he employed a great number of Christian slaves he also fortified the town by sea and by land He made several expeditions inland against the Bedoweens and Berbers, and against the Spaniards of Oran Bona also surrendered to him Meantime his galleys infested the Mediterranean and especially the coasts of Spain

In 1532 the people of Tunis being dissatisfied with their king Muley Hassan, invited Barbarossa who landed at Goletta, drove Hassan away and took possession of Tunis in the name of Solyman Sultan of the Turks Solyman in order to oppose Andrea Doria whom Charles V had made his admiral and who was then scouring the seas of the Levant appointed Barbarossa his 'pacha of the sea or great admiral Barbarossa leaving the regency of Algiers to his friend Hassan Aga a Sardinian renegade repaired to Constantinople where he assumed the command of the Turkish fleet In 1534 he sailed for the coast of Italy passed the Straits of Messina and landing on several points of the kingdom of Naples ravaged the country and carried away an immense booty He landed in the night the town of Fondi scaled the walls and plundered it carrying away the inhabitants as slaves It was said that his chief object in this attack was to seize the person of Giulia Gonzaga the wife of Vespasiano Colonna Count of Fondi, who was reckoned one of the handsomest women in Italy She however, had just time to escape out of the town in her bed clothes Barbarossa returning to Tunis was soon after attacked by Charles V in person with Admiral Doria Ferrante Gonzaga and other captains Doria took Goletta and Barbarossa shut himself up in Tunis but the numerous Christian slaves in the town having revolted he was obliged to escape and the troops of Charles V entered Tunis which was barbarously pillaged Doria next took Bona and placed a garrison in it Barbarossa having reached Algiers put to sea again in his own galleys and made an inroad on the coast of Spain In 1537, Solyman collected a large force at La Vallona on the coast of Albania for the invasion of the kingdom of Naples and Barbarossa repairing there with the fleet landed part of the troops near Castro in the province of Otranto took the town, and devastated the country Disputes breaking out soon after between Barbarossa and some Venetian ships of war which were sailing past the Turkish fleet this led to a war between Venice and the Porte in which Barbarossa attacked Corfu, and ravaged the island but failed in taking the town His next step was to sail to the Archipelago where he plundered the islands of Paros Naxos, Syra Tenos, and others which belonged to the Venetians In the following year he sailed to the Adriatic where the fleets of Charles V Venice and the Pope, had assembled at Corfu The Pope's galleys having entered the Gulf of Arta Barbarossa blockaded the entrance when Doria and Capello, the Venetian admiral, sailed out of Corfu to offer him battle in September, 1538 As Barbarossa came out of the gulf he was vigorously attacked by the Venetians and sailed back Capello wished to follow him in but Doria objected, and returned to Santa Maura The outcry of the other officers and especially of the Venetians, made Doria weigh anchor, and sail once more for Arta when Barbarossa again came out to meet them, but Doria in spite of the remonstrances of the Venetian admiral, kept at a distance, and refused to attack the enemy Doria then sailed back into Corfu, followed by the Ottomans who took several ships in the rear This affair has been magnified by the Turkish writer of the *Tarikh al Othmanieh*, 'History of the Ottomans, into a defeat of Doria by Barbarossa The conduct of Doria on this occasion has been ascribed by some to his national jealousy of the Venetians, and by others to secret instructions from Charles V, who might wish to humble rather than to support Venice In the next year, Barbarossa took by storm Castelnovo, in the Gulf of Cattaro, where Doria had left a Spanish garrison, which was all cut to pieces In 1542, Francis I of France having made alliance with Sultan Solyman against Charles V, the Turkish prince sent Barbarossa into the Mediterranean with a fleet of 150 galleys and 10,000 soldiers the whole of which force he put at the disposal of the King of France. Barbarossa began by his usual course of devastation against the unfortunate kingdom of Naples He burnt Cotrone, Reggio, and other towns, where his men committed the most horrible excesses in the presence of the French envoy, who was on board Barbarossa's admiral's ship The Turks sailed next for the Roman coast, and anchored before Ostia, to the great alarm of the people of Rome, but the Pope happening to be on good terms with the French King, his subjects were spared Barbarossa then sailed for Marseilles, where he was received with great honour by the governor, Count of Enghien A French squadron of forty ships having joined the Turks, they sailed together out of Marseilles on the 5th of August 1543 to attack the town of Nice which belonged to the Duke of Savoy People saw with astonishment the Ottoman crescent and the lilies of France combined against a Christian city on whose ramparts floated the white cross of Savoy Nice was obliged to surrender by capitulation, but the castle continued to defend itself until the report of Doria's approach induced Barbarossa to raise the siege He, however plundered the town in the night against the articles of the capitulation burnt part of it and carried off 5000 of the inhabitants Soon after the French and the Turks quarrelled and Barbarossa resolved to leave his allies and return to the Levant On his way back he plundered the islands of Elba and Giglio with those of Procida and Ischia the coast of Policastro the island of Lipari the town of Cariati in Calabria, and other places 'More than 12,000 Christian slaves of all ages and sexes says the historian Segni were crowded into the holds of his galleys most of whom falling sick through confinement, misery, and privations, were thrown into the sea before they were dead Barbarossa returned to Constantinople in 1544 and he does not seem to have gone to sea any more after wards He died in 1546 and was buried at Beshiktash, near the entrance of the Black Sea where he had a country house and where his tomb was still to be seen not many years since (Haedo and Marmol above quoted Robertson's *History of Charles V*, and the other historians of that time)

BARBARY a general and rather vague denomination which has been adopted by Europeans to designate the northern part of Africa, which extends along the coast of the Mediterranean and as far inland as the great desert from the frontiers of Egypt to the Atlantic Ocean It embraces four great states or divisions,—the Empire of Marocco and the regencies of Algiers Tunis, and Tripoli, with their respective dependencies The appellation of Barbary appears to have been derived from Berber, by which the Arabs designated the people who inhabited this region before the Saracen conquest [See BERBER] Such at least seems to be the derivation assumed by the Arabian historians and geographers who use the word Barbary or Berbery in speaking of North Africa Others derive Barbary from *Barbarus*, barbarian [See BARBARIAN] Edrisi divides the country into the regions of Barca, Afrikiah, Barbary, and El Aessa or Mauritania El Aessa meaning 'the farthest The Arabs now call Marocco Moghreb el Aessa, or 'the farthest west, whilst they call Algiers Moghreb el Aousath or 'middle west Edrisi's Barbary comprises Numidia and Gætulia His Afrikiah includes Tunis and western Tripoli, and Barca is the country east of the Great Syrtis [See BARCA] Herodotus uses the name of Libya for the whole continent (iv 42) he considers (iv 197) the Libyans as the inhabitants of North Libya, and the Ethiopians of South Libya, and in this passage seems to exclude Egypt from Libya He describes (chap iv, 168-199) very minutely the nations or tribes that lived in his time in Libya between the frontiers of Egypt and Carthage The first nation, proceeding from Egypt westward along the coast, were the Adyrmachidæ, whose manners were Egyptian, but whose dress was Libyan they extended along the coast as far as Port Plunos Next to them were the Giligammæ, who extended as far as the island Aphrodisias, near Cyrene.

The island of Platea, now Bomba, was on the coast of the Giligammæ, but was possessed by the Greeks of Cyrene. The Cyreneans, who were a Greek colony, and whose country was the most elevated and most fertile district in this part of Libya, were possessed of an extent of coast of about 120 miles to the west of the Giligammæ. They were surrounded by Libyan nomadic tribes, the Asbystæ to the south, and the Auschisæ and the Cabales to the west. Next came the Nasamones, the most powerful of all the nomadic tribes of Libya: they extended along the eastern shores of the great Syrtis, and likewise along its southern or innermost coast, having occupied the land of the Psylli, a tribe who were said to have been destroyed by the suffocating wind of the desert. The Macæ were next to the Nasamones, and stretched along the western coast of the great Syrtis. They occupied the present territory of Mesurata and Lebida as far as where Tripoli stands. Next to them the Lotophagi extended to the shores of the smaller Syrtis, including the island of Meninx, the modern Gerbi. West of the Lotophagi came the Machlyes, who spread from the south-west extremity of the lesser Syrtis to the lake Tritonis (the present lake Lowdeah in the southern extremity of the territory of Tunis), and along the south-eastern coast of the same. On the opposite or northern side of the lake were the Auses, the last of the nomadic tribes of Libya mentioned by Herodotus. The Maxyes, their northern neighbours, along the coast, called themselves descendants of the Trojans: they were husbandmen and lived in houses. The country from hence to the westward Herodotus describes as mountainous, covered with forests, and abounding in wild animals, among which he enumerates the elephant (iv. 191), while the country of the nomadic Libyans, he says, is mostly sandy and flat. North of the Maxyes Herodotus places the Zaueces, and further still the Zygantes, who appear to have been the same as the Zeugitani of subsequent geographers, being the inhabitants of a province immediately adjoining Carthage, provided we admit the reading Zygantes in preference to Gyzantes. (See Herod. iv. 194, *var. lect.* ed. Schweig.) Herodotus's account of the maritime provinces of Libya ends with the Zygantes. Of interior Libya he mentions the people of Augila, or the modern Audjelah, and further west the Garamantes, who used to hunt after the Ethiopian Troglodytes, the swiftest of all men known, who lived upon lizards, snakes, and other reptiles, and who spoke a language different from all other people, and which resembles the cry of the bat. He also places the Gindanes south of the Lotophagi. The Gindanes are probably the people of Ghadames. He says that ten days west of the Garamantes were the Atarantes, the individuals of which had no name. Ten days beyond the Atarantes, he says, there was a hill of salt, and beyond it were the Atlantes, who inhabited the sides of Mount Atlas. 'I know,' he adds, 'the people who live in the high lands as far as the Atlantes, but not those who live beyond.' In another passage he says that Mount Atlas is 30 days' journey west of the country of the Lotophagi, which supposing he meant the high summits of the Atlas of Mauritania, near Marocco, gives a tolerably correct indication of the distance. Herodotus sums up his account of Libya by saying, 'it is inhabited by four races, as far as I know, two indigenous and two foreign. The indigenous are the Libyans to the north and the Ethiopians to the south, and the foreign are the Greeks and the Phœnicians.' It must be observed that besides the Carthaginians, who are believed to have been originally a Phœnician colony, there were Phœnician settlements on the coast of Mauritania, as mentioned by Strabo and others. Of the origin of the Libyans, the aborigines of North Africa, we know nothing. The Arabian historians pretend that they were a colony from Yemen which came across the deserts under one Melek Ifriki (Ibn Alraquiq, quoted by Marmol) in very remote times. Of the Carthaginian empire Herodotus does not speak, probably because Carthage was less immediately connected with his main subject, the wars of the Greeks and Persians, than many other of his episodes; but though Carthage had not attained its greatest height of power in the time of Herodotus, it was a powerful state when Xerxes invaded Greece. (*Herod.* vii. 165.) To the west of Carthage was the country known in the Roman period by the name of Numidia, which occupied the space of the present regency of Algiers, the eastern part of it belonged to the Massyli, and the western part to the Massæsyli, as far as the great river Molochath. This river divided it from Mauritania, the country of the Mauri or Maurusii, who extended to the columns of Hercules: 'a numerous and wealthy people,' says Strabo, 'who were said to be Indians who had come over with Hercules.' South of the Mauri Strabo places the Pharusii and the Nigretes, and farther still the Hesperian Ethiopians. Beyond Mount Atlas to the south-east the country now called Beled el Jereed was inhabited by the Gætuli. The Garamantes appear to have been the people of Fezzan, although Ptolemy and other geographers have placed them much farther to the west and south of Numidia.

The Romans, after having subdued Carthage, extended their dominion gradually over the whole of Northern Africa. They conquered Numidia after a long and arduous war with Jugurtha. Cyrenaica was afterwards bequeathed by its king Apion to the Roman republic. Mauritania continued longer under its native kings, and it was only in the reign of Claudius that it was finally subdued by Suetonius Paulinus, and united to the Roman Empire, forming two provinces: Mauritania Tingitana, so called from Tingis, its capital, which was the original Mauritania, extended eastward as far as the river Molochath; Mauritania Cæsariensis, which was the country of the Massæsyli, or Western Numidia, extended eastward from the Molochath to the river Ampsaga. To the east of the Ampsaga lay the country of the Massyli, which retained its name of Numidia, and extended to the east as far as the river Tusca. Beyond this river was the province of Africa Propria, the former territory of Carthage, which extended as far as the great Syrtis. To the eastward of the Syrtis was the province of the Cyrenaica, the easternmost part of which, called Marmarica, bordered upon Egypt. Such was the political division of Northern Africa under the Roman Empire.

Under the weak and profligate reign of Honorius the Vandals, who had settled themselves in southern Spain, passed into Africa, A.D. 428, their king Genseric being invited to that conquest by Count Boniface, the Roman governor, who had revolted against Honorius. The Vandals conquered the greater part of Northern Africa, where they committed the most horrible cruelties, and in a great measure cleared the country of its former inhabitants. The successors of Genseric reigned over Africa for about a century, till the time of Justinian, who sent Belisarius to reconquer the country. Belisarius defeated the Vandals and made their king Gelimer prisoner. Africa remained from that time subject to the Eastern Empire till about the middle of the seventh century, when the Saracens from Egypt invaded first Cyrenaica, and afterwards Africa Propria. Okba ben Nafi, the general of the Caliph Moawiya, overran Numidia and Mauritania as far as the Atlantic. In the year 670 he laid the foundation of Kairwan. Okba crossed the Atlas into Getulia, where he was treacherously killed: his tomb was still seen in the time of Shaw, near the banks of the Adjedee river, at the village of Seedy Okba. Fresh irruptions of Saracens from the East completed the subjugation of the whole country. Under the Caliph Walid I. (705-715) Musa was sent into Africa with a large army, and he subdued the whole of Mauritania, driving away the Spanish Goths, who had, till then, kept possession of the coasts. Tarik, Musa's lieutenant, crossed the sea into Spain, defeated Roderic, and laid the foundation of the Arab dominion in Spain. Northern Africa was now entirely subject to the Arabs, and the natives adopted the religion of their conquerors. Regions so vast, however, could not long remain quietly under the dominion of the distant caliphs, and the various governors and local chiefs aspired to make themselves independent. The revolution which raised the house of Abbas to the caliphate about the middle of the eighth century, and the subsequent separation of Spain from their empire, led to the breaking up of the power of the Eastern Saracens in Africa. Edris, a descendant of Fatima, founded an independent kingdom in Fez in Western Mauritania, A.D. 788. Soon after the Aglabides established an independent dynasty at Kairwan in Eastern Africa. Later in the ninth century the Zeirids made themselves independent in Tunis and the surrounding country. Frequent wars occurred between these various powers, as well as between them and the Ommiade caliphs of Cordova, the Abbaside Caliphs of Bagdad, and the Fatimide Caliphs of Egypt. About the middle of the eleventh century, the Morabets or Almoravides, a religious

sect, originally from Arabia, but settled in the southern parts of Mauritania, effected a revolution in that country, overthrew the Zegries, and founded a new dynasty. They built the city of Marocco, which became their capital, and thence they spread over the whole of Mauritania, and also into Spain, where their emir, Yussef, defeated both Christians and Moors who opposed him, and established his dominion at Cordova, A.D. 1087. Cordova and Marocco were both capitals of the empire of the Almoravides. The dynasty of the Almoravides was overthrown in its turn by the Almohades, another sect which rose likewise in the southern regions of Mauritania, and whose chief, Abdul-mumen, took Marocco in 1147, and conquered the rest of the country, as well as part of Spain. His successors, however, lost Spain in the first part of the thirteenth century, and not long after were driven away from Marocco by the Beni Merinis, who were, in their turn, dispossessed by the Beni Oatazes, about the year 1470. In the early part of the following century, a fresh adventurer, Mohammed Ben Hamed, who styled himself Sherif el Hushem, and pretended to be of Mohammed's lineage, started up among the Berbers of Darah south of the Atlas, and took Marocco. His son took Fez in 1548, and founded the dynasty of the Sherifs, which has reigned over the empire of Marocco ever since. While these events took place in Mauritania, the eastern provinces of North Africa were divided into a number of petty principalities. There were kings of Tlemsan, of Tennes, of Bugia, of Tunis, Kairwan, &c. The two brothers Barbarossa in the sixteenth century conquered the whole country of the ancient Numidians, of which they formed the state of Algiers, and the younger brother Khair-eddin acknowledged the supremacy of the Sultan, from whom he received the title of Pacha and Regent of Algiers. [See BARBAROSSA.] Soon after the sultan established in a like manner his supremacy over Tunis, which state or regency includes the Africa Propria, or country of the former Carthaginians. The country east of the little Syrtis, or the Tripolitana of the ancients, including Cyrenaica proper, was formed about 1550 into a distinct pachalik, which took its name from Tripoli, the chief town, and which extends to the frontiers of Egypt. Thus the great divisions of the country retain still, though under different names, nearly the same boundaries as at the time of the Romans. The regencies of Barbary, although nominally subject to, are in fact independent of, the Porte. The head of each is absolute sovereign in his dominions. As for the empire of Marocco, the sultan has never claimed any authority over it. For a further description of each of these four divisions, and of the country in general, see ALGIERS, MAROCCO, TRIPOLI, TUNIS, and ATLAS.

The region which we call Barbary is called by the Arabs of Egypt and of Asia Moghrib, or the West, and the people Moghrebins. The language of the Moors is called the Western Arabic, and differs from the Arabic of Egypt and Syria. Some of the Arab tribes of the interior, however, are said to have retained their original language, the Koreish or Eastern Arabic. The principal races that inhabit Barbary are: 1. The Moors, who live mostly in the towns, and who are a very mixed race, many of them are descended from those who were driven out of Spain in the fifteenth and sixteenth centuries. 2. The Arabs, who are mostly nomadic, and tend their flocks on the plains of the interior. 3. The Berbers, or Kabyles as they are called in Algiers and Tunis, who chiefly inhabit the mountains and the valleys of the Atlas. 4. The blacks from Sudan, who are mostly slaves. 5. The Jews, who are very numerous in the towns. 6. The Turks, who are the militia of the three regencies, and have children by Moorish wives, who are called Koulouglis.

The length of Barbary from east to west may be reckoned about 2000 miles from Bomba, the eastern frontier town of the regency of Tripoli, to the coast of Mogadore in Marocco. The breadth of the country varies greatly. It is greatest in Marocco, where the inhabited districts, in the provinces of Darah and Sus, appear to extend southward to about the 29th degree, or the latitude of Cape Nun, whilst the northernmost point of the same empire at Ceuta is 35° 50′, giving therefore, a breadth from north to south of about 470 miles. In the meridian of Algiers the inhabited country does not seem to extend farther south than about the 33rd degree N. lat., where is the district of the Beni Mozab. The southernmost parts of the inhabited country of Tunis are nearly under the same parallel. In the regency of Tripoli, the tract of the inhabited land is much narrowed by the great indentation of the coast, produced by the Syrtes, where, especially at the innermost recess of the great Syrtis, the sands of the great desert almost touch the sea-shore. But at various distances, in a southern direction across the waste, are several oases, such as Fezzan, Ghadames, and Audjelah, which being dependencies of the regency of Tripoli must be considered as parts of Barbary. The eastern limits of Barbary may be traced by a line departing from the northern coast east of Bomba about 25° E. long., and running in a southern direction between the oasis of Audjelah and that of Siwah or Ammon, which last is considered as a dependency of Egypt.

Islamism is the religion of Barbary: all the tribes even of Berbers are said to profess it, at least nominally. A great number of Jews are found in all the principal towns, where many of them carry on various branches of profitable trade. The blacks, who are very numerous in Barbary, and who come originally from Soudan, or the countries south of the Great Desert, are, if they may be said to have any religion at all, Pagans. (Marmol, *Descripcion de Africa*; Procopius, *de Bello Vandalico*; Shaw's *Travels in Barbary*, &c.)

BARBASTRO, a district in Aragon, bordering on the north upon the Pyrenees, on the south upon the district of Zaragoza, on the east upon that of Benabarre, and on the west upon that of Huesca. It is a narrow strip or tract of land extending from north to south as far as Boltoya, and from thence becoming gradually wider till it reaches the frontier of Catalonia, on the south-east. Its natural division is into mountainous and plain country: the latter, however, is not entirely free from elevations. The mountainous part is one of the highest in the Pyrenean chain, and is covered with trees. The river Cinca, which runs from a lake to the west of Monte Perdido, after having through the gorges of the mountains flows through a spacious plain in a south-east direction, and after receiving several streams in its course, falls into the Ebro near Mequinenza. The territory of Barbastro in the Pyrenees abounds in mines of iron and copper. In the valley of Gistain there is a good mine of cobalt. The mountainous part comprises the valleys of Puertolas and Sarrablo. The level country is one of the most fertile and best cultivated in Aragon, and enjoys the benefit of irrigation. The principal produce consists of wheat, barley, oats, rye, garbanzos or Spanish peas, Indian corn, beans, oil, wine, honey, and wax, flax, and hemp. The oil is not of the best quality, owing to the mode of extraction. The best wines are those of Barbunales and Estadilla. The rich pastures of the district feed numerous herds of cattle. There are also several manufactories of silk, all kinds of linen, hemp, and woollen stuffs, of soap, of earthenware, and for the tanning of leather. The district contains 210 towns, villages, and hamlets.

BARBA'STRO, the capital of the district, is situated on the banks of the small river Vero, which divides it into two parts, united by stone bridges. The climate is rather cold, but salubrious, and the territory very fertile. Barbastro is an episcopal see, containing 180 parishes, one of which is in the town. The chapter consists of the bishop, seventeen canons, and a number of chaplains. Barbastro was in the power of the Moors till 1065, when Sancho Ramirez, the second king of Aragon, rescued it from their hands, and erected it into a bishopric. The population is 7173 inhabitants. The geographical situation of the town is 41° 55′ N. lat., 10′ E. long. (Miñano.)

BARBAULD, ANNA LÆTITIA, to whom the cause of rational education is probably more indebted than to any other individual of our own times, was the eldest child and only daughter of the Rev. John Aikin, D.D., and the sister of John Aikin, M.D. Miss Aikin was born on the 20th of June, 1743, at the village of Kibworth Harcourt in Leicestershire, where her father was at that time master of a boys' school. She enjoyed the advantage of having for her mother a lady of polished manners, cultivated mind, and high principles, who devoted herself to the formation of her daughter's character with a degree of interest and zeal that can rarely be felt by any but a parent.

From her childhood Miss Aikin manifested great quickness of intellect. At a very early age she had acquired what was in that day considered to be a competent degree of school learning for a young lady, and exhibited a great desire to add to her attainments an acquaintance with classical authors in the original languages. This was opposed by her father for some time, but he at length yielded to her

wish, and she acquired such a knowledge of Latin as to be able to read works in that language with advantage, besides which she gained some acquaintance with Greek. The quiet retirement of Kibworth Harcourt afforded full opportunity for the indulgence of this taste, and the removal of her father with his family to the town of Warrington when she was fifteen years of age, happened soon enough to prevent any bad effects from the seclusion in which her childhood had been passed. At Warrington the society among which she lived was such as to fix her tastes in the direction they had taken, and to enlarge the sphere of her knowledge. Miss Aikin had early shown a taste for poetry, but it was not until the year 1773, when she was thirty years of age, that she yielded to the persuasions of her brother, and consented to the publication of a selection from her poems. The result fully justified this step, for within the year of its publication four editions of the work were called for.

This success at once established her reputation, and Miss Aikin was induced, also in 1773, to publish a volume in conjunction with her brother, under the title of *Miscellaneous Pieces in Prose*, by J. and A. L. Aikin; a work which also met with a favourable reception, and has been frequently reprinted. The respective contributions of the authors have never been distinguished or correctly assigned.

In 1774 Miss Aikin married the Rev. Rochemont Barbauld, a dissenting minister, descended from a family of French Protestants, who had taken refuge in England in the reign of Louis XIV. Mr Barbauld was educated in the academy at Warrington, and at the time of his marriage had been recently appointed to the charge of a dissenting congregation at Palgrave in Suffolk, near Diss in Norfolk, where he had announced his intention of opening a boarding-school for boys. This undertaking proved speedily successful, a result which must in great part be attributed first to the reputation and afterwards to the active exertions of Mrs Barbauld. She particularly superintended the departments of geography and English composition, which latter she taught by a method then unusual, but which has since been brought much into practice. Her plan, according to the statement of Mr. William Taylor of Norwich, one of her first pupils, was "to read a fable, a short story, or a moral essay, aloud, and then to send them back into the school room to write it out on slates in their own words. Each exercise was separately overlooked by her; the faults of grammar were obliterated, the vulgarisms were chastised, the idle epithets were cancelled, and a distinct reason was always assigned for every correction, so that the arts of inditing and criticising were in some degree learnt together." Mrs Barbauld also instructed the pupils in the art of declamation; and the pleasing accomplishments of good reading and graceful speaking have probably never been taught with more assiduity or with better success than by herself. After a few years thus devoted, Mrs. Barbauld was solicited to receive several little boys as her own peculiar pupils; and among this number may be mentioned Lord Denman, the present Chief Justice of England, and Sir William Gell. It was for the use of these her almost infant scholars that she composed her *Hymns in Prose for Children*.

In 1775 Mrs. Barbauld published a small volume, entitled *Devotional Pieces compiled from the Psalms of David, with Thoughts on the Devotional Taste, and on Sects and Establishments*. About the same time also she wrote that admirable little volume, her *Early Lessons*, a publication which has ever since been a standard work, and though frequently imitated, yet stands unrivalled amidst them all. This little volume was written for the use of one of her nephews, who had been adopted by Mr. Barbauld and herself in consequence of their having no child of their own. In the present day, when parents are in possession of the labours of many clever persons for aiding the task of early instruction, it is difficult to form a correct estimate of the value of Mrs. Barbauld's *Early Lessons*. At the time of its first appearance, as at present, there was a multitude of books professedly written for children, but not one adapted to the comprehension of a child of very tender age, that was not at the same time injurious from its folly or puerility. The value of a book which was not only free from these objections, but calculated to impress upon the mind of a child just ideas and noble principles, could not fail to be appreciated by every judicious parent, and Mrs. Barbauld's work became immediately popular in a high degree.

The success of the school at Palgrave remained unimpaired, but the unceasing call for mental exertion on the part of the conductors which its duties required, so much injured their health, that after eleven years of unremitting labour an interval of complete relaxation became necessary; and Mrs. Barbauld accompanied her husband in the autumn of 1785 to Switzerland, and afterwards to the south of France. In the following year they returned to England, and early in 1787 took up their residence at Hampstead, where for several years Mr. Barbauld received a few pupils.

In 1790 Mrs. Barbauld published an eloquent and indignant address to the successful opposers of the repeal of the Corporation and Test Acts. In the following year was written her poetical epistle to Mr. Wilberforce on the rejection of the bill for abolishing the slave trade. In 1792 she published *Remarks on Mr Gilbert Wakefield's Inquiry into the Expediency and Propriety of Public or Social Worship*, and in 1793 she produced a work of a kind very unusual for a female, a sermon, entitled *The Sins of Government Sins of the Nation*. In all these works Mrs. Barbauld showed those powers of mind, that ardent love for civil and religious liberty, and that genuine and practical piety by which her whole life was distinguished, and for which her memory will long be held in reverence. In particular her remarks on Mr Wakefield's *Inquiry* may be noticed as being one of the best and most eloquent and yet sober appeals in favour of public worship that has ever appeared.

In the notice of Dr Aikin, inserted in our first volume, we have mentioned that his sister supplied several contributions to his excellent work *Evenings at Home*. These contributions were fourteen in number. It would be useless to distinguish them here, or to say more concerning them than that they are equal in merit to the other parts of the volumes. These papers, trifling in amount, but not in value, comprise all that Mrs. Barbauld published till 1795, when she superintended an edition of Akenside's *Pleasures of Imagination*, to which she prefixed a critical essay. In 1797 she brought out an edition of Collins's *Odes*, with a similar introduction. These essays are written with elegance, and display much taste and critical acuteness.

Mr. Barbauld became, in 1802, pastor of a Unitarian congregation at Newington Green, and at this time he changed his residence to Stoke Newington. The chief inducement to this removal was the desire felt by Mrs. Barbauld and her brother to pass the remainder of their lives in each other's society. This wish was gratified during twenty years, and was interrupted only by death. In 1804 she published a selection of the papers contained in the *Spectator*, *Guardian*, *Tatler*, and *Freeholder*, with a preliminary essay, in which is given an instructive account of the state of society at the time the papers originally appeared, and of the objects at which they aimed. This essay has been much admired for its elegance and acuteness. In the same year Mrs Barbauld prepared for publication a selection from the correspondence of Richardson the novelist, prefixing a biographical notice of him and a critical examination of his works.

About this time Mrs. Barbauld's husband, to whom she had been united for more than thirty years, fell into a state of nervous weakness, and at last died in November, 1808.

From the dejection occasioned by this loss Mrs Barbauld sought relief in literary occupation, and undertook the task of editing a collection of the *British Novelists*, which was published in 1810. To these volumes she contributed an introductory essay, and furnished biographical and critical notices of the life and writings of each author: these were written with her usual taste and judgment. In the next year she composed and published the longest and most highly finished of her poems, entitled *Eighteen Hundred and Eleven*. The time at which this poem appeared was by many persons looked upon with gloomy forebodings, and the matters of which it treats were considered as indicative of the waning fortunes of this kingdom. It was perhaps owing to the spirit of melancholy prediction by which it is pervaded that this poem was not received by the public as it deserved. It is written throughout with great power and in harmonious language; its descriptions are characterised by deep feeling and truth, and its warnings are conveyed with an earnestness which is the best evidence of the sincerity of the author.

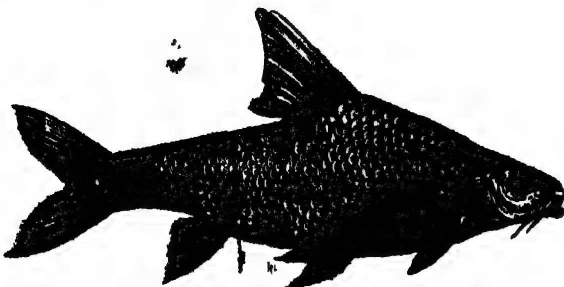
The unfair construction applied to her motives in writing this poem probably prevented Mrs. Barbauld from appear-

ing again as an author. Her efforts were confined to the humbler task of administering to the gratification of a circle of private friends. Although arrived at years which are assigned as the natural limit to human life, her fancy was still bright, and she continued to give evidence, by occasional compositions, of the unimpaired energy of her mind. Her spirits were greatly tried during the latter years of her life by the loss of her brother, who died in 1822, and of several cherished companions of her early days who quickly followed. Her constitution, naturally excellent, slowly gave way under an asthmatic complaint: and on the 9th of March, 1825, after only a few days of serious illness, she died, in the 82nd year of her age.

In domestic and social life Mrs. Barbauld was characterised by strong sense, deep feeling, high moral principle, and a rational but ardent piety. She passed through a lengthened term of years free from all annoyance of personal enmities, and rich in the esteem and affection of all with whom she was connected.

BARBEL (*Barbus*, Cuvier), in Ichthyology, a genus of abdominal malacopterygious fishes, belonging to the Carp family (*Cyprinoides*), and distinguished by the shortness of their dorsal and anal fins, by a strong spine, which replaces the second or third ray of the dorsal, by four beards or fleshy tentacula, which grow from the lips, two at the nose, and the other two at the corners of the mouth, and by having but three branchiostegous rays. Like the great majority of the abdominal soft-finned fishes, the barbels are a fresh-water genus, and certainly among the least carnivorous of the whole class. They feed almost entirely upon aquatic plants and roots, to obtain which they bore into the banks of the ponds and rivers in which they reside, using their snout for that purpose like a hog. They are, generally speaking, covered with large rough scales, and though their flesh is commonly but coarse and indifferent eating, yet the rule is not without exceptions, and some are even esteemed as delicacies. There are numerous species both in the old and new worlds, and many of them attain to a very large size. Of these we shall only mention two, referring for further information to the various treatises upon natural history which treat more particularly of this subject.

The *Common Barbel* sometimes measures three feet in length, and weighs from fifteen to eighteen pounds. The section of its body forms an elongated ellipse: its scales are small, its head smooth, its eyes large and contiguous to the nostrils, and the lateral line straight and nearly parallel to the back. Its pectoral fins are of a pale brown colour; its ventral and anal tipped with yellow; the tail is slightly bifurcated, and of a deep purple, and the general colour of the scales is pale gold, edged with black on the back and sides, and silvery-white on the belly. The dorsal fin is armed with a strong serrated spine, with which it sometimes inflicts dangerous wounds on the hands of the fishermen, and does considerable damage to their nets. The barbel is found only in deep and still ponds, and in sluggish rivers which have little or no current. In the hot summer months the barbels abandon for a time the deep pools and ponds which had protected them from the severe winter frosts, and make excursions into the shallower parts of the stream in search of food. Their habits are nocturnal, and they are fond of the society of their own species, being generally found together in large companies. Their flesh is extremely coarse and unsavoury, and their roe in particular is said to produce vomiting, purging, and slight swellings in those who incautiously eat it.



[Common Barbel.]

The *Binny*, or barbel of the Nile, is so like the common barbel of our European rivers, that it might readily be mistaken at first sight for that fish; but a little observation will show that it is proportionally shorter and thicker, its back more arched, and it is particularly distinguished by having the first three rays of the dorsal fin so closely united as to have the appearance of almost forming but one single spine. The upper jaw projects considerably beyond the under, the eyes and nostrils are large and round, the caudal and anal fins of the colour of saffron, and the lateral line composed of oblong points, and nearly bisecting the body longitudinally. The scales have a pale silvery lustre, and are of considerable size, which has made some imagine this fish to be the *lepidotos* of the Greeks, which, with the *latos* and *oxyrhynchus*, was considered sacred by the Egyptians (Herod. ii. 72). The binny is very common in the Nile; it grows to a large size, sometimes weighing, according to Bruce's statement, upwards of seventy pounds, and is described as being a firm, delicate, and well-flavoured fish. The traveller just mentioned gives an interesting account of the methods which the Egyptians employ for the capture of the binny, and for preserving it alive till they require to dress or have an opportunity of disposing of it. Having kneaded together a quantity of oil, clay, flour, and honey, with some chopped straw or other similar material to unite the different parts of the composition, the whole is formed into a mass, in size and appearance resembling a Cheshire cheese, round the sides of which, in different parts, are stuck small pieces of dates saturated in honey. Seven or eight stout hooks, each having a separate line of strong whip-cord, and baited with a date steeped in honey, are concealed in the centre of the cake. The fisherman then, bestriding his inflated goatskin, paddles himself and his burthen out into the middle and deepest part of the stream, where having sunk the whole mass, he carries the cords attached to the hooks on shore, and fastens each of them separately to the branch of a palm stuck firmly into the ground, and having a small bell suspended from the top of it. He then goes off about his work, which, upon such occasions, is always contiguous to the river, and within hearing of the bells. In a short time the action of the water begins to dissolve the mass of paste at the bottom of the river, and the small pieces of dates getting detached from it float down the river, and are greedily caught and devoured by the binnies. These naturally ascend the stream in the direction from which they perceive their favourite food to proceed, and having arrived at the mass of composition, begin, as is their custom, to root and bore into it, till they at length arrive at the dates inside, which they ravenously swallow, and are of course caught by the hook concealed within. In his struggles to escape he necessarily pulls the line and the palm branch to which it is made fast on shore, when the ringing-bell, agitated by the motion, gives immediate notice to the fisherman.

'The fisherman,' says Bruce, 'runs immediately to the bell, and finding thereby the particular line, hauls his prisoner in, but does not kill him: the hook being large, it generally catches him by the upper jaw, which is considerably longer than the under. He then pulls him out of the water, and puts a strong iron ring through his jaw, ties a few yards of cord to it, and returning the fish to the river, fastens him to the shore: so he does with the rest, for very rarely is there a single hook empty. Those who want to fish at Girge, a large town opposite, or at Achmim itself, come thither as to a fish-market, and every man takes the quantity he wants, buying them alive. Fish, when dead, do not keep in Egypt, which makes that precaution necessary. We bought two, which fully dined our whole boat's crew; the fisherman had ten or twelve of them fastened to the shore, all of which he pulled out and showed us.'

BARBER-SURGEONS. In former times, both in this and other countries, the art of surgery and the art of shaving went hand in hand. As to the barbiers-chirurgiens in France, see the *Diction. des Origines*, tom. i. p. 189. They were separated from the barbiers-perruquiers in the time of Louis XIV., and made a distinct corporation.

The barbers of London were first incorporated by King Edward IV. in 1461, and at that time were the only persons who exercised surgery; but afterwards others, assuming the practice of that art, formed themselves into a voluntary association, which they called the Company of Surgeons of London. These two companies were, by an act of parliament passed in the 32 Hen. VIII. cap. xli., united and made one body corporate, by the name of the Barbers and Surgeons of London. This act however at once united and

separated the two crafts. The barbers were not to practise surgery further than drawing of teeth; and the surgeons were strictly prohibited from exercising 'the feat or craft of barbery or shaving.' The surgeons were allowed yearly to take, at their discretion, the bodies of four persons after execution for felony, 'for their further and better knowledge, instruction, insight, learning, and experience in the said science or faculty of surgery;' and they were moreover ordered to have 'an open sign on the street-side where they should fortune to dwell, that all the king's liege people there passing might know at all times whither to resort for remedies in time of their necessity.' Four governors or masters, two of them surgeons, the other two barbers, were to be elected from the body, who were to see that the respective members of the two crafts exercised their callings in the city agreeably to the spirit of the act.

Holbein commemorated the granting of the charter to the barber-surgeons in a picture which is still preserved at their hall in Monkwell-street.

The privileges of this company were confirmed in various subsequent charters, the last bearing date the 15th of April, 5th Charles I.

By the year 1745 it was discovered that the two arts which the company professed were foreign to and independent of each other. The barbers and the surgeons were accordingly separated by act of parliament, 18th Geo. II., and made two distinct corporations.

(See Pennant's *London*, p. 255; *Stat. of the Realm*, vol. i. p. 794; Edmondson's *Compl. Body of Heraldry*; Strype's edit. of Stowe's *Survey of London*, b. v. ch. 12.)

BARBERI'NI, an Italian family, originally from Florence, which was raised to a high rank among the Roman nobility in consequence of the elevation of one of its members, Cardinal Maffeo Barberino, to the papal chair in 1623, when he assumed the name of Urban VIII. [See URBAN VIII.] Urban had three nephews, two of whom were made cardinals, and the third prefect of Rome. Under the long pontificate of their uncle the three brothers Barberini attained great power at Rome, where they held the chief business of the government in their hands; and they had also considerable influence in foreign courts. They became possessed of the fief of Palestrina, which had formerly belonged to the Colonna family; and they aspired also to the possession of the duchy of Castro and Ronciglione, in the province called the Patrimony of St. Peter, near Rome, which belonged to the Farnese family, who had received it as a fief from Pope Paul III. This led to a war between the pope and Edward Farnese, duke of Parma, who was joined by the dukes of Modena and of Tuscany, and by the republic of Venice. Cardinal Antonio Barberini commanded the papal troops, and showed considerable skill and personal courage. There was some sharp fighting at Nonantola, near Ferrara, and on the Modenese territory, in 1643. In the following year peace was made by the interposition of France, and Castro was restored to the duke of Parma. After Urban's death in 1644, Innocent X., who succeeded him, and who partly owed his elevation to the influence of the two cardinals Barberini, instituted proceedings against them for peculation and abuse of power during their uncle's pontificate. The Barberini took refuge in France, where they were favourably received by Cardinal Mazarin, through whose influence Cardinal Antonio Barberini, the eldest brother, was made archbishop of Rheims and great almoner of France in 1645. In 1652 Innocent X. again admitted the Barberini to his favour, and they returned to Rome, where all judicial proceedings against them were dropped. Lucrezia Barberini, niece of the two cardinals, married, in 1655, Francis I. d'Este, duke of Modena. The Barberini have ever since ranked among the first Roman nobility, several individuals of their name having been successively raised to the rank of cardinals, while the lay representative of the family bears the title of Roman prince, and is possessed of estates at Palestrina, Albano, and in other parts of the Roman state. In the palace of the Barberini at Palestrina is the celebrated mosaic taken out of the Temple of Fortune of Præneste. [See PALESTRINA.] The palace Barberini at Rome is a vast structure, built by Bernini, and gives its name to the square before it. It contains a museum, a gallery of paintings, and a library, which was collected by Cardinal Francis Barberini, one of the nephews of Urban VIII. The library is rich in valuable MSS.; its catalogue was printed at Rome in 1681, in 3 vols. folio. There is also a fine villa, with extensive gardens, belonging to the same family, at Rome, near the Thermæ of Diocletian, and another in the neighbourhood of Albano.

BARBERINI VASE. [See PORTLAND VASE.]

BARBERRY. [See BERBERIS.]

BARBETS (Zoology), the English name for a family of birds of the order *Scansores*, or climbers, *Les Barbus* of the French, and the genus *Bucco* of Brisson and Linnæus. They are distinguished by their large conical beak, which appears swollen, as it were, or puffed out at the sides of its base, and is bearded (whence their name) with five tufts of stiff bristles directed forwards. One of these tufts is behind each nostril, one on either side of the lower mandible, and the fifth is under the symphysis.

Their short wings and heavy proportions do not admit of swift flight; and their prey consists of insects and young birds, which they surprise, and also of fruits. Their nests are generally built in the holes of trees. The *barbets* are now divided into the three following subgenera:

Subgenus Pogonias.

Pogonias (Illiger) is furnished with one or two strong teeth on each side of the upper mandible, and the beard is very strong. Africa and the Indies are the places where they are found, according to Cuvier, who says that the species of this subgenus feed more on fruits than any of the others. *Pogonias hirsutus* (Swainson), an African species, is a good example.



[Pogonias hirsutus.]

Pogonias hirsutus is about seven inches in length. Chin, part of the throat, head and neck, deep black, changing to dark-brown, on the back, wings, and tail. The upper plumage spotted, and marked with sulphurous. Under plumage, greenish sulphur, closely spotted with blackish. The setaceous feathers of the breast form the predominant character of this species.

Subgenus Bucco

Bucco (Cuvier), *Capito* (Vieillot), embraces the true barbets, which have the conical bill slightly compressed and a little elevated in the middle. Their plumage is, generally speaking, gay; and they are to be found both in Africa and Asia. During the breeding season they go in pairs, but congregate in small flocks during the remainder of the year. The *Buff-faced Barbet* (*Bucco Lathami*) affords an example of the *true barbets*.

The length is six inches. The bill pale, beset with bristles at the base, which are somewhat longer than the bill itself. the forehead, chin, and sides of the head, round the eyes, of a dull buff-colour; upper parts of the head and body dark olive-green; under parts lighter. Wings the same as the upper parts; quills dusky with greenish edges. Tail dusky and short. Legs and claws yellow.



[Bucco Lathami.]

Latham refers to a specimen in the British Museum, and says that its native place is uncertain.

Subgenus Tamatia

Tamatia (Cuvier), the name by which one of these birds is known in Brazil according to Maregrave, comprises those species which have the bill a little more elongated and compressed, and slightly curved at the extremity. The great head, short tail, and large bill of these *Puff-birds*, as they are called, give them, as Cuvier observes, an air of stupidity, which their melancholy and solitary habits do not lessen. They are said to feed entirely on insects, and all the recorded species are American. In Paraguay, according to Azara, they are called *chacurus*. Temminck affixes the name *Capito* to this subgenus.

Tamatia macrorhynchos (Swainson), which that author obtained from southern Brazil, and which he is disposed to consider a variety of the greater pied barbet of Latham, will give a good idea of the character of these birds.



[Tamatia macrorhynchos.]

Swainson, who had good opportunities of observing them (and such opportunities that zealous zoologist never neglected), gives, in his *Zoological Illustrations*, the following interesting account of their habits. 'There is something very grotesque in the appearance of all the Puff-birds; and their habits, in a state of nature, are no less singular. They frequent open cultivated spots near habitations, always perching on the withered branches of a low tree; where they will sit nearly motionless for hours, unless, indeed, they descry some luckless insect passing near them, at which they immediately dart, returning again to the identical twig they had just left, and which they will sometimes frequent for months. At such times the disproportionate size of the head is rendered more conspicuous by the bird raising its feathers so as to appear not unlike a puff-ball; hence the general name they have received from the English residents in Brazil, of which vast country all the species, I believe, are natives. When frightened, this form is suddenly changed by the feathers lying quite flat. They are very confiding, and will often take their station within a few yards of the window. The two sexes are generally near each other, and often on the same tree.'

The length of this species is about eight inches. Plumage black and white, except the belly and vent, which are tinged with buff*.

BARBEYRAC, JEAN, an eminent jurist, was born at Beziers in Lower Languedoc, on the 15th of March, 1674. His parents were Calvinists, and upon the revocation of the edict of Nantes, in 1686, retired from France, and took up their abode at Lausanne in Switzerland, at which place Barbeyrac was educated. His father designed him for the church; but in early life his taste decidedly led him to historical and juridical studies, and he therefore attached himself to the faculty of jurisprudence. In 1697 he became teacher of the belles lettres in the French College at Berne, where he remained about fourteen years. During this period he published in periodical repositories of France and Holland several small treatises upon subjects connected with natural and international law; and in 1709 appeared the first edition of his *Traité du Jeu*, which excited much attention, and upon which his early reputation was principally founded. A posthumous edition of this work, considerably enlarged and improved, was published at Amsterdam in 1737. This singular book deserves to be particularly noticed: it consists of an elaborate dissertation on a trifling subject, abounding in a recondite and unusual kind of learning, and applying at great length the rules of religion, morals, and law, to establish the proposition that play, or games in general, and even playing at games of chance, are not in themselves unlawful occupations. The subject is divided into four books: the first contains arguments to show that plays, or games in general, are not inconsistent with natural law or religion; the 2d book applies these arguments specifically to the different kinds of play in use at different ages of the world; the 3rd book states the limitations with which the proposition is to be understood; and the last division enumerates the various abuses of play. The *Traité du Jeu* would probably find few readers at the present day; and its value can only be appreciated by the few who may have occasion to refer to it as a digest or collection of a very peculiar kind of facts and arguments. About the same time with the publication of the *Traité du Jeu*, Barbeyrac prepared and soon afterwards published French translations of Puffendorff's *Abridgment of the Law of Nature and Nations;* and of two discourses of Gerard Noodt, a learned professor of law at Leyden, *De Jure Summi Imperii et Lege Regiâ*, and *De Religione ab Imperio Jure Gentium liberâ;* all of which were accompanied with laborious and useful annotations by Barbeyrac. In 1711 he was appointed by the Senate of Berne to the chair of law and history, then lately established at the College of Lausanne. His inaugural oration, *De Dignitate et Utilitate Legis et Historiarum*, was published, at the request of the senate of the college, in the following year. In 1713 Barbeyrac became a member of the Royal Society of Sciences at Berlin; and in 1714 he commenced a new version of Grotius's treatise *De Jure Belli et Pacis*, with notes, which display much historical research and a profound acquaintance with the law of nations. By this work, and also by his edition of Puffendorff, he established his reputation as a jurist throughout Europe;

* In the article 'Bald Buzzard,' column 1, line 30 from the bottom, for 'devouring fish,' read 'devouring a fish.'

and in 1717 he accepted an invitation to become professor of law at the University of Groningen. A few years after his establishment at Groningen, he compiled his *Histoire des Anciens Traités*, consisting of a chronological collection of antient treaties from the earliest times of which there are any authentic records to the death of Charlemagne, with full historical notes and illustrations: it was published by him as a supplemental volume to the *Corps Universel du Droit des Gens*, and appears to be by far the most useful of his works. He also translated into French Bynkershoek's *Traité du Juge competent des Ambassadeurs*. Barbeyrac took an active part in a controversy between the Dutch East India Company and certain merchants of Ostend and other parts of the Austrian Netherlands, which was carried on with considerable zeal about the year 1725. The Company claimed, under a clause in the Treaty of Münster, a right of trading to India, exclusive of the then subjects of the king of Spain, while the inhabitants of the Austrian Netherlands contended that the words of the treaty only excluded Castilians, or Spaniards inhabiting the actual territory of Spain, and could not be extended to distant dependencies of the Spanish crown, such as Flanders and Brabant. Barbeyrac, in his tract, which is entitled *Défense du Droit de la Compagnie Hollandoise des Indes Orientales contre les nouvelles Pretensions des Habitans des Pays-bas Autrichiens*, defends the exclusive title of the Dutch Company. We have already enumerated the principal works of Barbeyrac; besides these, several tracts and anonymous pieces of less importance were inserted by him in the *Journal des Sçavans* and other literary periodicals. Three discourses, delivered on academical occasions at Lausanne, in the years 1714, 1715, and 1716, were also published. He died at Groningen in 1729. Several letters from Barbeyrac to Mons. des Maiseaux, written at various periods of his life, but containing nothing of much interest, are among the additional MSS. in the British Museum.

BARBEZIEUX, a town in France in the department of Charente, on the road from Paris through Tours, Poitiers, and Angoulême to Bordeaux, 312 miles S.S.W. of Paris, 24 miles S.W. of Angoulême, and 65 miles N.N.E. of Bordeaux, 45° 27′ N. lat., 0° 9′ W. long.

This little town is well built, in the form of an amphitheatre, on a hill, at the foot of which flows a small stream, from which extends a vast plain. The stream flows into the Seugne or Saugne, a feeder of the Charente. The situation of Barbezieux, on a high road of such importance, brings it some trade. Some linens and hats are also made. The linen manufacture is of antient date. The surrounding district is fertile in wheat, oats, rye, and hay. The vine is cultivated on some little hills, and the capons of Barbezieux are in great repute. The sheep are in good estimation, also, both for their flesh and wool. The population of the town, in 1832, was 2437; of the commune altogether, 2756.

Barbezieux was formerly called Barbesil, or in the Latin of old writings Barbesillum. It was surrounded by walls, and was defended besides by a strong castle. The castle was destroyed in the wars of Guienne by the English. It was rebuilt by the house of Rochefoucault, to which Barbezieux belonged under the reign of Francis I.; but this structure also has been almost entirely demolished, except a part which is used as a prison. The walls have been likewise destroyed. Before the Revolution there were two parish churches, and a convent of Cordeliers, the last beyond the circuit of the antient walls.

Near the town is a mineral spring called Fontouilleuse, or Fontrouilleuse, the waters of which, though perfectly limpid, have what is described as a marshy smell.

Barbezieux is the capital of an arrondissement, or subprefecture, which comprehends 465 square miles, or 297,600 acres, and had in 1832 a population of 58,042.

Barbezieux was the birth-place of Elias Vinet, an antiquary and scholar of considerable note in the sixteenth century.

BARBIERI. [See GUERCINO.]

BA'RBITON, in *music*, the name of an instrument in use among the antients, and that it was a kind of lyre we cannot for a moment doubt, though writers on the subject seem very willing to make it a matter of difficulty. M. Dacier, judging from a passage in Horace (lib. i. carm. 32), concludes that the barbiton was strung with thick flaxen cords. The writer in the *Encyclopédie Methodique* infers, from the same ode, that the poet means to attribute to Alcæus the invention of the instrument, but it appears to us that he only intends to ascribe to him the invention of lyric poetry. M. de Castilhon is perplexed between Musonius and Athenæus, the one making Terpander, the other Anacreon, the inventor of the Barbiton.

BARBOU, the name of a family of printers, who long rendered themselves famous for the correctness as well as elegance of the works which issued from their presses.

John Barbou, the first of the name who is known, was settled at Lyons, where he printed the works of Clement Marot, in the Italic letter, in small 8vo. 1539. Hugh Barbou, son of John, left Lyons, and established himself at Limoges, where, in 1580, he produced a beautiful edition of Cicero's *Letters to Atticus*, with notes by Simon Dubois, lieutenant-general of Limoges. The third volume of the *Biographie Universelle*, A.D. 1811, states that a printer of the name of Barbou was still in business at Limoges.

The first of the Barbous who settled at Paris was John Joseph, who became a bookseller there in 1704. He died in 1752. His brother Joseph became a bookseller in 1717, and a printer in 1723. He died in 1737, when his widow succeeded him, but parted with the printing-office in 1750.

Joseph Gerard Barbou, nephew of the two Barbous last-mentioned, who became a bookseller in 1746, took in 1750 the printing office of his uncle Joseph's widow, and soon after engaged in the series of classics which bears his name, and which was in fact the renewal of a series begun in 1743 by M. Lenglet Dufresnoy, and printed by Coustelier, as rivals to the classics which had been published at an earlier day by the Elzevirs, though of a size somewhat larger.

There is a complete set of the Barbou Classics in the Royal Library at the British Museum. The following is a chronological list of them:—Catullus, Tibullus, and Propertius, 1754; Lucretius, 1754; Phædrus, 1754; Martialis, 2 tom. 1754; Eutropius, 1754; Cæsaris Comment 2 tom. 1755; Quintus Curtius, 1757; Plautus, 3 tom. 1759; Tacitus, 3 tom. 1760; Selecta Senecæ Opera (in Gall. versa), a French version with a Latin title, 1760; Ovidius, 3 tom. 1762; Virgilius, 2 tom. 1767; Lucani Pharsalia (cum Suppl. Tho. May), 1767; Cornelius Nepos, 1767; Ciceronis Opera, 14 tom. 1768; Plinii Sec. Epist. 1769; Justinus, 1770; Sallustius, 1774; Horatius, 1775; Titus Livius, 7 tom. 1775; Persii, Juvenalis, et Sulpiciæ Sat. 1776; Velleius Paterculus, 1777; Plinii Hist. Naturalis, 6 tom. 1779. Besides these, J. G. Barbou printed a Latin Testament, and various works of less note, chiefly between 1757 and 1789, when he resigned his business to his nephew Hugh Barbou, who dying in 1809, his heirs disposed of the business of this the last of the Barbous to M. Auguste Delalain, who added four volumes to the set, viz.: Juvencius, 1809; Musæ Rhetorices, 1809; and Quintilianus, 1810. The whole series of the classics printed by Coustelier, Barbou, and Delalain, make 78 volumes.

Two works from the press of Joseph Gerard Barbou (in similar type and size with the classics) affect to have been printed in London. Sarcotis et Caroli V. Panegyris, 1771; and Erasmi Moriæ Encomium, 1777. The latter undoubtedly, and probably the former, was a prohibited book. 'Londini et venit Parisiis apud J. Barbou,' in the title of each was merely intended as a blind.

For the principal facts and dates relating to the family of Barbou, we are indebted to the *Biographie Universelle*, already quoted.

BARBOUR, or **BARBER, JOHN**, a divine, historian, and one of the best poets of Scotland, was born, as is supposed, at Aberdeen, according to Sir David Dalrymple about the year 1316 (*Annals*, vol. ii. p. 3): according to other authorities, in or about the year 1330. Having received a learned education, he entered into holy orders, and was promoted by King David II. to the archdeaconry of Aberdeen, in 1356. His love of learning was so strong, that he continued to prosecute his studies even after his promotion; and with this view he prevailed upon his sovereign to apply to King Edward III. for permission to reside for a time at Oxford: the letter of safe-conduct for which, with three scholars in his company, all coming to perform scholastic exercises, is preserved in Rymer's *Fœdera* (old edit. tom. vi. p. 31: see also the *Rotuli Scotiæ*, vol. i. p. 808). By a deed dated at Fetherin, in Aberdeenshire, September 13, we find him appointed in the same year, by the Bishop of Aberdeen, one of his commissioners to deliberate at Edinburgh upon the ransom of the Scottish king.

Although the archdeacon was famed for his extensive knowledge in the philosophy and divinity of the age in

which he lived, he gained a greater reputation, even at that time, by his poetry, in which he composed a history of the life and glorious actions of King Robert Bruce. Dr. Henry (*Hist. Brit.*, edit. 8vo., 1805, vol. viii. p. 249) says, it was written 'at the desire of King David Bruce, his son, who granted Barbour a considerable pension for his encouragement, which he generously bestowed on an hospital at Aberdeen.' (See also Nicolson's *Scottish Hist. Lib.*, edit. 1776, p. 40.) Dr. Jamieson, however, has clearly shown, that there is, in fact, no proper evidence that any pension was granted by David Bruce, or indeed that this monarch ever laid his commands on Barbour to write the life of his royal parent. David II. died in 1371, four or five years before Barbour had written much more than half of his work; and the first intimation of his receiving a pension is not less than fifteen years after this, February 18, 1390, only two months before the death of Robert II. (Jamieson's *Memoir of Barbour*, p. 9.) Barbour had really two pensions, one of 10*l*. Scots from the customs of Aberdeen, limited to his life, and another of 20*s*. from the rents or burrow-mails of that city, expressly recorded as a reward for the compilation of *The Bruce*, and accompanied by a grant of it to his assignees in mortmain; whereupon, at his death, instead of giving it to an hospital at Aberdeen (as has been said by Godscroft, Tanner, &c.) he assigned it to the chapter of the cathedral church of Aberdeen, to sing a mass for his soul. (Jamieson, *ut supra*, pp. viii. ix.)

Henry says that Barbour finished his history in 1373; but this must be an error of a figure, as Barbour himself (*Bruce*, b. ix. v. 890) says it was in 1375. While engaged in this work, in 1365, he obtained permission and safe conduct from King Edward III. to travel through England into Wales, with six horsemen, his attendants.

Dr. Jamieson (*ut supra*, p. xii.) fixes the date of Barbour's death, with seeming accuracy, at the close of the year 1395.

The value of Barbour's work, as an historical record, was early acknowledged (see the continuator of Fordun's *Scotichronicon*, lib. xii. c. 9, and Wyntown); and it is remarkable, that though Barbour was a Scotsman, his versification and language are more intelligible to a modern English reader than that of any other poet of the fourteenth century, his great contemporary Chaucer himself not excepted.

The first known edition of *The Bruce* was published at Edinburgh in 1616, in 12mo.; but an earlier is believed to have existed. (See Jamieson's *Memoir*, p. x.) Another, printed in 8vo., by Andro Hart, in 1620, was reprinted at Edinburgh, in 4to., 1758. Other editions were printed, 8vo. Edinburgh, 1648, Glasgow, 1665; 12mo., Edinburgh, 1670; Glasgow, 1672;- and there are a few editions in meaner forms. The best editions, however, are Pinkerton's, printed from a MS. in the Advocates' Library at Edinburgh, dated in 1489, with notes and a glossary, 3 vols. 8vo., London, 1790, and Dr. Jamieson's (the best of all), 4to. Edinburgh, 1820.

From some passages in Wyntown's *Chronicle*, it has been surmised that Barbour also composed a genealogical history of the kings of Scotland; but no part of this is known to be extant.

(See Henry's *Hist. of Brit.*, edit. 8vo., 1805, vol. viii., p. 249, Pinkerton's edit. of *The Bruce*; Irving's *Lives of the Scottish Poets*, vol. i., p. 257-265; and Jamieson's *Preface* to *The Bruce*, pp. i.—xxii.)

BARBU'DA, one of the Caribbean Islands, situated 27 miles north of Antigua, is of an oval form, 15 miles in length from S.E. to N.W., and 8 miles broad. It was first settled by a party from St. Kitts led by Sir Thomas Warner, shortly after that colony was formed. The first settlers finding the coasts surrounded by rocks, a scarcity of water, and being harassed by frequent incursions of the Caribbs from Dominica, abandoned the island.

Some time after, General Codrington obtained the property of it by a grant from the crown, and formed the project of raising stock on it for the supply of the neighbouring islands, in which he succeeded very well. It is the only proprietary government in the West Indies. It is inhabited by two white overseers and about 400 slaves, who are employed in breeding stock, such as cattle, sheep, pigs, poultry, &c. They also cultivate corn, cotton, pepper, indigo, and tobacco, but no sugar is grown. It is still held by the Codrington family, to whom it yields an annual income of about 5000*l*.

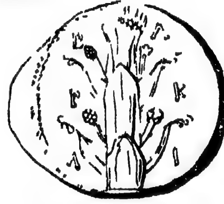
The island is low, level, and fertile. The highest part lies to the east, and is called the 'High Land,' though it is not more than 80 feet above the sea. It is covered with woods, which are well stocked with deer and various kinds of game. Land-crabs are also preserved here under lock and key, and considered a luxury for the table. There is a lagoon of brackish water seven miles in length, communicating on the north-west with the sea, and having from four to six feet water in it, in which are snappers, baracoutas, king-fish, and other species. The mansion of the estate, or castle as it is called, is situated on the margin of this lake, and around it are the plantations. A church and school have recently been erected. The air is so mild and pure, that invalids from other islands commonly resort here for the restoration of their health.

The coasts are defended by several small batteries. Reefs extend off the island in some places as far as five miles, but there is anchorage on the western side. Several vessels having lately been lost on its rocky shores, the merchants of Antigua have petitioned for a light-house to be built on it. As in other West India islands, turtle are found here on the shores. The castle is in 17° 38′ N. lat., 61° 51′ W. long.

BA'RCA, the name of a district in the eastern division of the regency of Tripoli. It is sometimes vaguely applied to the whole of that division, including the regions called by the antients the Syrtis, the Cyrenaica, or Pentapolis, and the Marmarica. But the political or administrative division of that vast range of country is as follows:—The district called Sert, or Sort, extends from the southern limits of the district of Mesurata in Western Tripoli, to a place called Muktar, on the southernmost coast of the gulf of Sidra or great Syrtis, beyond which the district of Barca begins. The Sort is under an Arab sheik, who is tributary to the pasha of Tripoli. The district of Barca extends inland to the north east from Muktar to beyond Derna, and the line of coast parallel to it is divided into two beylicks, Bengazi and Derna, the beys of which are appointed by and dependent on the pasha of Tripoli. The inland tract, called Barca, is under another Arab sheik, who is himself subordinate to the two beys of Bengazi and Derna. The district of Barca, which is entirely inhabited by nomadic Arabs, includes the hilly region of Cyrenaica. Various tribes wander in it, among which the Zaouyeh occupy the tract south of Bengazi, and the great tribe called El Harabi extend eastward of the same place as far as Derna. (Pacho, *Voyage dans la Cyrénaïque*.) The western part of the hilly range of Cyrenaica towards Bengazi is called by the Arabs Jebel Barca, or 'Mountainous Barca.'

Coin of Barca.





[From coin in British Museum. Silver. Actual size. Weight 204 grains.]

The inscription round the lower part of the head we believe to be 'Ἀκέσιος, that is, 'Jupiter the Healer.'

The name Barca is the modern form of the Greek name Barce, a colony of Cyrene (Herod. iv. 160), which perhaps existed already before as a Phœnician colony, as its name would indicate. It is stated by Scylax to have been 100 stadia from its harbour, which became afterwards the town called Ptolemais, now Tolometa. The situation of Barca appears to have been in the plain of Merge, a high tableland on the hills of Cyrenaica above Tolometa. (Beechey's *Narrative of an Expedition to the Northern Coast of Africa*; and Della Cella, *Viaggio da Tripoli alle Frontiere d'Egitto*.) Herodotus gives an interesting account of Barce, of its rivalry with Cyrene, and of the invasion of the Persians from Egypt, who took Barce by treachery after a long siege, and carried away a great number of its inhabitants into Asia, where Darius, the son of Hystaspes, settled them in Bactria (iv. 204). The territory of Barce occupied the western part of Cyrenaica, and its inhabitants seem to have been a mixture of Greeks from Cyrene and of native Libyans. When that country became subject to the Ptolemies, these kings built the town of Ptolemais, which drew away from Barce most of its remaining Greek inhabitants. Barce, however, continued to exist as a town; and we find that in the first ages of Christianity it had its bishops distinct from those of Ptole-

mais. (Le Quien, *Oriens Christianus*, vol. ii. p. 626.) After the Saracens conquered Egypt, they entered Cyrenaica, and Barce or Barcah, as they called it, became their chief town in that province. Hence the Arab geographers speak of the kingdom of Barca, which is synonymous with Cyrenaica. Cyrene long before this was in ruins.

Coin of Barca



[From a sulphur cast in the possession of Mr. Doubleday.]

Coin of Barca.



[From the collection of Mr Thomas. Actual size Silver, 197 grains.]

Under the Fatemite caliphs of Egypt the oppressions of the Saracen governors obliged the people of Barca to emigrate, and most of them passed into Egypt. Della Cella, however, mentions a treaty of commerce in 1236 between the republic of Genoa and Busacherino, a Mussulman chief, who styles himself 'Lord of Africa,' by which the Genoese were allowed to trade 'from Tripoli to the extremity of the kingdom of Barca.' Since that time the town of Barca has entirely disappeared, but the name has remained in use among the Arabs to indicate the country which once belonged to it. About 1550 Sultan Solyman having conquered Tripoli, united the country of Barca to it, and made a pashalik of the whole.

There has been much misapprehension among geographers about the nature of the soil in the regions round the great Syrtis; it has been represented as a tract of barren sand. This, however, is by no means the case. 'The country is parched up in summer, and it then looks dreary, but after the autumnal rains it is covered with a luxuriant vegetation: many parts of the Sort, which is the worst tract, afford excellent pasturage, and some produce good crops of barley and dhurra. The soil is sandy, but it is not merely sand. As for Cyrenaica, it is capable of the highest degree of cultivation. The Arabs of the country are described by Captain Beechey as a healthy, good-looking race, superior in appearance to those who inhabit the miserable towns of Bengazi and Derna, which are the only two places deserving the name of towns in the whole country. Taucheira, afterwards under the Ptolemies called Arsinoe, was a town of Barca, and its walls, which were repaired by Justinian (Procopius, Περὶ Κτισμάτων, lib. vi.), still remain in a good state of preservation. It has resumed its original name, slightly altered to Tocra, and its ruins are occupied part of the year by wandering Arabs. Ptolemais, or Tolometa, is likewise in ruins and deserted; as well as Berenice, now Bernic, and Apollonia, the former port of Cyrene. Descriptions of this interesting country, and of the extensive remains of its cities, have been given by the Beecheys, Pacho, and Della Cella already quoted. [See CYRENE.]

Bengazi has about 2000 inhabitants; most of the houses are built of mud, and are liable to be washed away by the heavy winter rains. Derna is a more considerable town than Bengazi, and has a somewhat better appearance. Both places carry on a little trade by sea. Bengazi provides Malta with bullocks. The rest of the country is occupied by nomadic tribes, as in the time of Herodotus. The limits between Tripoli and Egypt along the sea-coast are not very definite; they are nominally stated to be at Akaba el Soloon, the Catabathmus Magnus of the antients, about 26° E. long.; but the fact is, that the country in that neighbourhood is occupied by independent Arabs, who acknowledge neither the pasha of Tripoli nor the viceroy of Egypt. The whole of the Libyan desert to the westward of Egypt, and as far as Fezzan, is often called the Desert of Barca by European travellers and geographers.

BARCAROLLE, in *music*, a kind of song in the Venetian language, sung by the gondoliers at Venice. Though these airs are composed for the common people, and often by the gondoliers themselves, yet they so abound in melody, that there is not a musician in all Italy who does not pique himself on knowing and being able to sing some of them. The privilege of free entrance to all the theatres in Venice, which these boatmen enjoy (says Rousseau, writing in the middle of the last century), enables them to cultivate their ear and taste, so that to the natural simplicity of their airs they add a degree of refinement by no means inconsiderable. The words of these Barcarolles are commonly more than natural, partaking of the language employed in the conversation of those who sing them: but such as like a faithful representation of the manners of a people, and have any taste for the Venetian dialect, become passionately fond both of the poetry and music of these popular songs, insomuch that many persons possess large and curious collections of them.

Formerly most of the gondoliers knew by heart the greater portion of *Gerusalemme Liberata* (*Jerusalem Delivered*), and some the whole poem: they passed the summer nights in their gondolas, singing it in alternate stanzas. Before Tasso, Homer alone had the honour to be thus sung; and no other epic poem has since been equally distinguished. (*Rousseau.*) But Tasso is now no longer sung by the gondoliers; they still have, however, their songs in response to each other, *improviso*, which the common auditor may be liable (and no doubt willing) to take for Tasso. The old barcarolle was sung in parts, at stem and stern of the same boat, by its own gondoliers.

Barcarolle, or boat-song, comes to us from the Italian *barcarola*, through the French. The well-known airs *La Biondina in Gondoletta*, and *O Pescator dell' Onde*, are pleasing specimens of this species of song.

BARCELLOS, a comarca or district in Portugal, situated in the province of Entre-Douro-e-Minho, bounded on the east by the comarca of Braga, on the west by the ocean, on the south by the district of Oporto, and on the north by that of Viana. It contains a population of 13,482 inhabitants, distributed in 316 parishes. The river Cavado flows through it, fertilizing the land, and supplying the inhabitants with excellent salmon, lampreys, and eels. The soil produces abundantly all sorts of corn, wine, fruit, flax, honey, and wax. The mountains and woods abound in game, and the meadows feed much cattle.

Barcellos, the capital of the district, stands in a plain on the right bank of the Cavado, twelve miles from Braga, and twenty from Oporto, in 41° 30′ N. lat., and 8° 30′ W. long. It is surrounded by an old wall, with four gates, one of which opens upon a bridge over the Cavado. The bridge connects the town with the suburb, Barcellinhos. The town has two parishes, a collegiate church, two convents, one for men and another for women, an hospital, and an almshouse. The number of its inhabitants amounts to 3892. The country round is well cultivated, and the vicinity of the river affords the means of irrigation, both of which circumstances render its situation highly advantageous.

BARCELLO'NA, a town in South America, in the republic of Colombia, and the department of Maturin. It is the capital of the province which bears its name, and lies in 10° 10′ N. lat., and 64° 47′ W. long., on a small river, the Neveri, about three miles from the shores of the Caribbean Sea. The town is on the left bank of the river, and its houses have mostly mud walls. Its unpaved streets are extremely muddy in rainy weather; and in the dry season they are covered with a dust so light, that the least breath of wind raises it into the air. Nearly opposite the town, on the right bank of the Neveri, stands a small fortress, called el Morro de Barcellona, on a hill, which rises to about 360 or 400 feet above the sea; but it is commanded on the south by a more lofty eminence. This fortress protects the harbour and the shipping in it; but the aestuary of the Neveri is so shallow as not to admit vessels of any considerable size, and is besides exposed to the winds from north-east, north, and north-west. At the distance of about three miles from the shore is a small rocky island, called Borracha, inhabited by fishermen, which on its south side affords a safe anchorage for ships of the largest size.

Barcellona is one of the most unhealthy places in South

America, the air being very hot and moist at the same time. But the excessive moisture is extremely favourable to vegetation; and there are few tracts in South America which can compare with the country about Barcellona in fertility. Yet agriculture is not much advanced, and its commercial products are only cacao, indigo, and a little cotton.

The trade of this town, before the Spanish colonies obtained their independence, was considerable. The articles of export were chiefly the produce of the extensive pastures on the banks of the Lower Orinoco, and extending northward towards the sources of the Guarapiche; they consisted of cattle, horses, mules, jerked meat or tasajo, and hides, all which articles were carried to the West Indies. The situation of Barcellona is very favourable to this branch of trade, because the high land which separates the town from the Llanos, or plains, does not rise to a great elevation in these parts. In three days the cattle may be brought down from the plains to the coast, while eight or nine are required to take them to Cumana: on the latter route they are obliged to pass the high chains of the Brigantin and of the Impossible. Lavaysse gives the following detail of the export trade for the year 1802: 132,000 head of horned cattle; 2100 horses; 8400 mules; 800 asses; 180,000 hundred weight of tasajo or jerked beef; 36,000 ox-hides; 4500 horse-hides; 6000 hides of deer; from 3000 to 4000 lbs. of indigo; about 2000 lbs. of annotto; from 250,000 to 300,000 lbs. of cotton; and from 150,000 to 200,000 lbs. of cacao. We are not informed as to the changes which the late revolutions in South America may have effected in the trade of this town.

The fishery is another branch of industry, but it is not so extensive as farther to the east, near the town of Cumana and the islands of Margarite, Cubagua, and Coche, and is rather carried on by the fishermen of the neighbouring villages than by the inhabitants of the town.

This town had, in 1807, a population of 15,000 persons, half whites, and half mulattoes and negroes. By the aborigines who inhabit the country about it, that is, by the Cumanayotes, it is called Enipiricuar. (Humboldt, De Pons, Lavaysse.)

BARCELO'NA (Barcino, Βαρκίνων, Ptolemy), a fortified city and port of Spain, on the Mediterranean, in the principality of Cataluña, or Catalonia, of which it is the capital. It stands on a very gentle eminence between the river Besós on the north, and Llobregat on the south, in 41° 22′ N. lat., 2° 10′ E. long., commanding one of the most fertile and best-cultivated plains in the Peninsula. This plain is bounded by a chain of mountains, which form a curve line on the south, west, and northern sides.

It was probably one of the colonies formed by the Greeks on the eastern coasts of the Peninsula, and was the capital of the Laletani, a nation inhabiting the country extending from the Pyrenees to the river Ter. However this may be, a town appears to have been built here by Hamilcar Barcas or Barcino, about 235 B.C., who gave to it the name of his family. When the Carthaginians were expelled from Spain in 206 B.C., Barcelona fell into the hands of the Romans, who made it a colony, with the additional name of Faventia. In A.D. 411, the Gothic King Ataulphus made his triumphant entrance into it. In 718 it fell into the hands of the Mohammedans, who kept it until 801, when the Catalonians, assisted by Charlemagne and his son Louis, besieged it, and after an obstinate struggle of two years, forced the Moorish governor Omar, a relation of the wali of Barcelona, Zeyad, to capitulate. Barcelona was then erected into a county, and given in fief by the emperor Charlemagne to Bera, a French nobleman of Gaul. In 827 it was taken by Abderahman II., but in 833 it returned again into the power of the Christians. In 852 the Jews betrayed the city to the Mohammedans, who burned the greatest part of it, but did not retain the place. In 984 Barcelona was stormed by the formidable chief Almansor, who butchered the greatest part of the inhabitants, and burned many houses; but its count, Borello, marched to its succour, and recovered it. Barcelona remained an independent state, and was governed by its counts until 1131, when, by the marriage of Raimundo V. with Petronila, queen of Aragon, the county of Barcelona and the kingdom of Aragon became united. [See CATALUNA.] In 1640 the Barcelonians rose against their king, the profligate Philip IV., and the place was besieged by the Marquis of Los Velez, but the inhabitants forced him to raise the siege, and assisted by the French, resisted the troops of Philip for twelve years. During the struggles between the houses of Austria and Bourbon for the throne of Spain, Lord Peterborough besieged and took Barcelona for Charles of Austria, in 1706. The French prince, Philip, in 1713, offered the Barcelonians a liberal amnesty if they abandoned the cause of Charles, but they openly declared that they never would acknowledge his authority until he had given them a solemn promise to maintain their privileges. Philip did not consent to that condition, and the place was besieged. In the spring of 1714 Marshal Berwick reinforced the besiegers with 20,000 men. The Barcelonians, without distinction of rank, age, or sex, made a desperate defence; but, overwhelmed by superior forces, the place was taken by assault on the 12th of September.

Barcelona may be said to have existed as a maritime and commercial state from the eleventh century. There is a law of Raimundo II. of that epoch, granting important privileges to all the vessels proceeding from and coming to Barcelona. As a maritime power, that state then rivalled Genoa, Pisa, and Venice, in the commerce of the East. The Consulado, or Court of Commerce of Barcelona, dates from 1279, when Pedro III. granted the merchants of that city the privilege of appointing, from their own body, two deputies to protect their interests. These deputies, called consuls, presided over the Colegio de Mercaderes, or College of Merchants, who were elected by a majority of voices on the same day that the common-councilmen of the city were elected, and their office lasted one year. Afterwards, a supreme council, composed of a hundred members, called, on that account, el Sabio Consejo de los Ciento, was instituted. They were also elective, and were presided over by five cancelleres, or councillors, also elective. All these institutions were abolished, with the privileges of the Catalonians, by Philip V. Barcelona is now governed by the Ayuntamiento, or Common Council, in the municipal concerns; the judicial power is exercised by two alcaldes, mayors or judges, and by the Audiencia, or Court of Justice. There is a Real Acuerdo, and a Consulado; the former is the supreme authority of Catalonia, and the latter presides over commercial matters. A Junta de Comercio, or Board of Trade, directs public instruction, and appoints and pays professors, who deliver public lectures on navigation, chemistry, mechanics, drawing, architecture, natural philosophy, agriculture, commercial arithmetic, short-hand writing, French, Italian, and English languages. The schools, or lecture-rooms, are in the Lonja, or Exchange.

All the kings of Spain, from the time of the union of Catalonia and Aragon down to Philip V., being obliged to swear to the observance of the privileges of the principality, Barcelona has been frequently visited by the Spanish monarchs. Some of these visits have coincided with events deserving to be recorded. When Fernando the Catholic visited Barcelona, the great discoverer Columbus arrived in that port from his second voyage to the New World. In 1543, when Carlos I., the grandson of that king, was at Barcelona, the first vessel propelled by steam was put to sea in that port. This fact is mentioned by Navarrete in the introduction to his *Coleccion de los Viages y Descubrimientos* in a manner which leaves no room for doubt. It appears that a certain Blasco de Garay, who had made the discovery, proposed to the emperor to exhibit his invention before him, upon a vessel called the Trinidad, of 200 barrels burden. The vessel was put to sea in the presence of the emperor and his court, and of an immense multitude of people, who saw her, with astonishment, rend the waves without sail, oar, or any other human agency except a cauldron of boiling water and a very complicated machinery of wheels and paddles. The minister commissioned by the emperor to examine the invention gave an unfavourable report, and Carlos being called out of Spain paid no further attention to the subject. The inventor, however, was handsomely rewarded by Carlos, but the invention was lost to the world.

The mole covers a space of 6000 feet by 7200, where vessels can anchor. The original mole was built in 1477, but having been destroyed by storms in the sixteenth century, it was rebuilt as it exists at present. The officer of engineers, Don Juan Smith, about forty years ago, proposed to prolong the mole 1500 feet towards the south, and then erect a wall at the extremity of it, and nearly at right angles with it, 600 feet long and 150 wide, in the direction of W.S.W., forming some resemblance to the letter T.

The depth of water in the port is from eighteen to twenty feet. There is a bar at the entrance of it, supposed to be

formed by the confluence of the two streams Llobregat to the west, and Besos to the east of the town. The bar has been considerably lowered by a steam machine, which was very recently at work; and loaded vessels, drawing fourteen or fifteen feet water, can safely enter the port. A few years ago almost all vessels were obliged to be partially discharged in the roadstead before they could enter.

Vessels are commodiously moored in the harbour at a short distance from the pier. There are not any docks or quays. The port is open to the south, but the ships are pretty well sheltered by the new mole, and no serious damage has occurred to the shipping since the winter of 1821, when a dreadful storm was experienced.

There are always pilots on duty, who go out to the assistance of ships as soon as a vessel approaches the port, in order to carry her over the bar.

The fortifications appear to have been rebuilt in the time of Carlos I. The town is defended on the land side by the castle of Monjuich, situated on the south-west of the city, a citadel on the north-east, strong walls, wide ditches, and numerous batteries; and on the sea-side by a wall 380 feet long and 50 wide. Large vessels cannot approach near it for want of sufficient depth of water. The citadel is a regular pentagon, fortified according to the system of Vauban. It was built in 1716, on a space before occupied by 600 houses, and can conveniently hold a garrison of 7000 men. It was intended not for the defence of the city, but to keep the Barcelonians in awe and subjection On the sea-side is Fort St. Carlos, connected with the citadel by a double covered way, completely surrounding, on the land side, the suburb Barceloneta.

The city is divided by a pleasant promenade, called 'La Rambla,' into two almost equal parts: the smaller, or the new city, lies on the north-west of the Rambla, and the old city on the north-east. The streets in the old city are narrow and winding; in the new city they are wider and more regular; they are paved with square stones, but not kept in good repair; they are well lighted with oil, and guarded by the serenos, or watchmen, at night. The only square deserving mention is the Plá de Palacio, which is occupied by the palace of the capitan-general, the lonja, or exchange, the custom-house, and the puerta de la mar, or sea-gate, all fine buildings. The houses are of a very simple architecture, commodious, for the most part built of brick, and in general four or five stories high, with numerous windows and balconies of different shapes. The cathedral is a noble and elegant Gothic monument in the centre of the city. It was begun in the thirteenth century, and has never been finished, although a certain fee is imposed by the ecclesiastical court upon every license of marriage, which fund is expressly devoted to that sole purpose. The churches of the Dominican friars, called Santa Catalina, and the parish church of Santa Maria del Mar, though aiming at the Gothic style, do not deserve the credit given them by La Borde. Of the Greek and Roman styles the best are the Palacio de la Diputacion, now the Audiencia, the convent of la Merced, the exchange, and the custom-house. In the Palace of the Diputacion, where the antient cortes or parliament of the principality held their sittings, are the archives of Catalonia and Aragon, a very interesting and well-classified collection of curious manuscripts and diplomatic documents, some of which are as old as the ninth century. The palace of the antient counts of Barcelona is partly occupied by the nuns of Santa Catalina: in another part of the building is the College of Surgeons, and the remaining part was occupied by the Inquisition. This palace is only remarkable for its simplicity and strength. The theatre is, with regard to its construction, scenery, and decorations, the best in Spain. It is also the best conducted in every respect, and has excellent performers, particularly in the musical part, of which art the Barcelonians of all ranks are passionately fond. The best and most frequented promenades are La Rambla and La Esplanada. The former crosses the city from the land rampart to the wall on the sea-side, a distance of 2712 feet; and the Esplanada extends from Puerta Nueva to the citadel, a space of 1332 feet in length, containing a public garden, fine avenues of trees, and many stone seats.

Barcelona had a university, which was abolished by Philip V., and turned into barracks, which are still called Los Estudios. There are three public libraries, one in the ecclesiastical seminary, another in the church of Santa Catalina, and the third in the convent of the Franciscan friars. There is also an Academy of Sciences and Arts, and another of Polite Literature.

Barcelona gives its name to a bishop's see comprising 253 parishes. There are in the city nine parishes, eighteen convents of monks, nineteen of nuns, one hospital, an ecclesiastical seminary, a casa de caridad, or charity-house, and three barracks. The Real Casa de Caridad is a charitable institution, established in 1802, in the reign of Carlos IV. for the support of the destitute of both sexes and of every age. It is supported by the produce of public balls, masquerades, and by charitable donations. It is governed by a junta, or board of six individuals of the mercantile and industrious classes, appointed by the government. The poor are employed in spinning cotton, wool, and hemp, and weaving different stuffs of the same materials, and in making pins and other similar occupations. The children are instructed in reading and writing. In 1808, the establishment supplied food and clothing to 3656 inmates, besides many poor families who were supported in their own houses. In 1820 the number of destitute persons in the institution amounted to 1500, and in 1829 to 1000.

There is only one newspaper at Barcelona, called *El Vapor*. Some of the works published by the Society for the Diffusion of Useful Knowledge have been translated into Spanish, under the title of Libreria de Conocimientos Humanos, and published there in a form calculated to render their circulation extensive.

The number of companies of the different trades in Barcelona exceeds ninety. The manufactures of Barcelona, which existed in the thirteenth century, received great encouragement at the time of the discovery of America, but at the present time they are far behind those of France and England. Since the commerce of America has been open to all nations, the commerce of Barcelona has suffered considerably.

The number of vessels belonging to the port of Barcelona is very insignificant. What few there are find employment in the trade to Cuba and Puerto Rico. Previous to the defection of the Spanish provinces on the continent of America, the tonnage belonging to Barcelona was considerable.

The island of Cuba takes annually, one year with another, about 12,000 pipes of Catalonian wine, and about 3000 pipes of brandy, the value of the former being about 4*l*., and of the latter 8*l*. sterling per pipe. South America takes annually 16,000 pipes of wine and 6000 pipes of brandy. To the north of Europe about 2000 pipes of wine and the same quantity of brandy are sent every year. Very little of these descriptions of produce are exported to this country: almost the only article of merchandize which Great Britain takes from Barcelona is nuts, of which about 30,000 bags are annually imported: the value averages thirty shillings per bag. The imports into Barcelona from England are principally composed of raw cotton, hides, salted fish, iron hoops, hardwares, and woollen stuffs, but the quantities are inconsiderable, and the trade is declining. From Cuba and Puerto Rico Barcelona receives cotton, hides, sugar, cocoa, coffee, horns, dyewoods, indigo, and from 300,000 to 500,000 dollars in specie every year. From France and Portugal colonial products are also brought, in addition to butter and cheese; Denmark and Sweden supply fish and tar, and staves are procured from Italy. The aggregate value of imports during the three years ending with 1831, is stated to have amounted to 420,000*l*. in 1829, 570,000*l*. in 1830, and 650,000*l*. in 1831, exclusive of specie. The number and tonnage of ships engaged in foreign trade that entered the port during those years, was

In 1829,	122 ships of	17,072	tons burthen	
„ 1830,	86	do.	11,225	do.
„ 1831,	128	do.	15,135	do.

Of these, those under the British flag were,

In 1829,	24 ships of	2860	tons burthen	
„ 1830,	19	do.	2340	do.
„ 1831,	18	do.	2010	do.

The customs revenue collected at Barcelona in 1831 amounted to 10,027,170 rials (100,270*l*.) on goods imported, and 97,019 rials (970*l*.) on goods exported.

There are not at present any banking establishments in Barcelona. Every merchant is his own banker.

The people of Barcelona, though partaking of the stern and severe character of Catalonians, are kind and hospitable,

and possess the art of making their society agreeable to strangers. The inns are better conducted, perhaps, in every respect than in any other part of Spain. The Barcelonians are passionately fond of the pleasures of country life; and all those who have the means of gratifying their inclination, retire in the summer season to the neat and pleasant torres, or villas, which cover the extensive Plá, or plain, of Barcelona. From the city to the pleasant little village of Sarriá, for about four miles, the road is through gardens and well-cultivated fields, hedged round with the American aloes, and planted with orange-trees, olives, and other productions of warm climates. From Sarriá, which is situated upon an eminence, and commands both the plain and the city, there is one of the most magnificent panoramic views in the Peninsula. Beyond the city, the numerous towers and steeples of which give it an appearance of grandeur, the immense expanse of the Mediterranean opens to the view.

The population of Barcelona before the war with France in 1808 was 130,000 souls. In 1810 the town was in the possession of the French, and many of the inhabitants consequently emigrated. In 1820 the population was computed at 140,000, and it may now be calculated at 160,000. The increase during the last ten years is attributed in part to the civil wars, which have occasioned many families who lived in the interior to choose the town for their residence, as offering greater security from personal violence.

The suburb of Barceloneta is a small and pleasant town on the south-east of the city, between the port and the lighthouse. It consists of twenty-four parallel streets, intersected by fifteen others at right-angles, all twenty feet wide. The houses are all uniform, built of brick and one story high. This suburb was built in 1754 under the direction of the then Capitan-general Marques de la Mina, whose sepulchre is in the church of Barceloneta. The place is chiefly inhabited by sailors and other men employed in the navy or merchant-vessels. Its population is 5000.

(See Capmani, *Memorias Antiguas sobre la Marina, Comercio, y Artes de Barcelona*. Miñano; La Borde, *Itineraire de l'Espagne*, and *Vue Pittoresque*, &c.)

BARCELONNETTE, a town in France, in the department of Basses Alpes. It is situated on the right bank of the Ubaye, which flows into the Durance, and is in the midst of the mountains from which the department takes its name, at an elevation of 3805 feet above the level of the sea. It was built in 1230 by Raymond Berenger V., Count of Provence, who gave to it the name of Barcelonnette, because his family had come from Barcelona in Spain. Some inscriptions found in the neighbourhood have led to the supposition that the Romans had some post, or even a city here. For 158 years the town and the valley, of which it is the capital, remained under the Counts of Provence; but in 1388 the inhabitants recognized the Duke of Savoy as their sovereign, and continued, for the most part, under the dominion of the Princes of Savoy till the peace of Utrecht, in 1713, when the town and valley were ceded to France. It appears, indeed, to have been conquered by Francis I., and to have remained in the possession of the French for some years, till the peace of Château Cambresis in 1559, when it was restored to the Dukes of Savoy. Towards the beginning of the fourteenth century a Dominican convent was founded here, but the house was afterwards given to the Pères de la Doctrine Chrétienne, who converted it into a college.

There are in the town some establishments for fulling cloth. The machinery is chiefly moved by water conducted to the place in channels of considerable length. Some trade in corn and in sheep is carried on. Sheep are reared in vast numbers in the fine pasturage of the adjacent valley. The population of Barcelonnette, in 1832, was 1789 for the town, or 2144 for the whole commune. It is in 44° 24′ N. lat., 6° 37′ E. long.

The arrondissement contains 472 square miles, or 302,080 acres, and had in 1832 a population of 18,783. It includes the valley of Barcelonnette and some other districts. The valley is watered in its whole extent by the river Ubaye. It yields slate and coal, but the working of the latter has been given up on account of the expense attending it.

The inhabitants of this neighbourhood used to resort to Paris and elsewhere, the women as musicians, and the men as showmen with magic lanterns. (*Dictionnaire Universelle de la France*, &c.; *Voyages dans les Départemens de la France*, par J. A. La Vallée, &c.)

BARCLAY, ALEXANDER, was an elegant writer of the sixteenth century, but whether English or Scotch by birth is disputed. The author of his life in the *Biographia Britannica* suspects him to have been a native of Somersetshire; Warton (*Hist. Engl. Poet.* 4to. edit. vol. ii. p. 240) that he was of Gloucestershire or Devonshire, in the former of which counties there is a place of the same name. He was educated at Oriel College, Oxford, about 1495, when Thomas Cornish, suffragan Bishop of Tyne in the diocese of Bath and Wells, was provost of that house. After finishing his studies there, he went into Holland, and thence into Germany, Italy, and France, where he applied himself assiduously to the languages spoken in those countries, and to the study of their best authors. Upon his return home, he became chaplain to Bishop Cornish, who appointed him one of the priests or prebendaries of the college of St. Mary Ottery, in Devonshire. After the death of his patron he became a monk of the Benedictine monastery of Ely, where his name occurs at the election of a prior of that house March 22nd, 1515 (*MS. Cole*, Brit. Mus. from Reg. Elien.), and where he continued till the suppression of the monastery in 1539. Bishop Tanner (*Bibl. Brit. Hib* p. 74), from one of Bale's manuscripts, says he afterwards became a Franciscan at Canterbury. There seems no doubt that he subsequently temporised with the changes in religion. On February 7th, 1546, we find him instituted to the vicarage of Great Badow in Essex (Newcourt, *Repert. Eccles.* vol. ii. p. 25), and on March 30th following to the vicarage of Wokey in Somersetshire. (Tann. *Bibl. Brit.* from Regist. Wellen.) On the 30th April, 1552, he was presented by the Dean and Chapter of Canterbury to the rectory of Allhallows, Lombard-street, in London, but did not enjoy that preferment above the space of six weeks. He died in the June following at Croydon, in Surrey, where he was buried in the church. His will was proved on the day of his burial, June 10th, 1552. (Newcourt, *Repert.* vol. i. p. 254.) In several passages of his works he alludes to the passing of some of his younger years at Croydon. (See Warton, *ut supr.* note i.) We also learn from them that John Vesey, Bishop of Exeter, Sir Giles Alington, Richard Earl of Kent, who died in the fifteenth of Henry VIII., and Thomas Duke of Norfolk, were among his patrons.

Bale (*Script. Illustr.* edit. 1557, cent. ix. p. 66) has treated the memory of Barclay with great indignity. He says, he remained a scandalous adulterer under colour of leading a single life. His words are 'cœlibatus fuco fœdus adulter perpetuò mansit.' Pits, on the contrary, assures us that Barclay employed all his study in favour of religion, and in reading and writing the lives of the saints. Both accounts are probably tinctured with partiality. That Barclay was one of the refiners of the English language, and left many testimonies behind him of his wit and learning, cannot be denied.

The following is a list of Alexander Barclay's works as far as they are known:—1. 'The Castell of Labour, wherein is Rychesse, Vertue, and Honour,' an allegorical poem in seven-line stanzas, translated from the French, 4to. London, W. de Worde, 1506. 2. 'The Shyp of Folys of the Worlde,' fol. Lond. R. Pynson, 1509: reprinted, fol. J. Cawood, 1570. This work was partly a translation and partly an imitation of a German work of the same title, published in 1494 by Sebastian Brandt, afterwards translated into French, and then into Latin. From this original, and the two translations, Barclay formed his poem with considerable additions gleaned from the follies of his countrymen: it was finished in 1508. 3. 'The Treatyse entituled the Myrrour of good Manors,' translated from the Latin of Domynike Mancyn, fol. R. Pynson, *n. d.*: reprinted with the 'Ship of Fools' in 1570. 4. 'Egloges, or the Miseries of Courts and Courtiers,' 4to. Lond. R. Pynson and W. de Worde, *n. d.*: 4to. J. Herforde, about 1548, 4to.: Humph. Powell, *n. d.*: and fol. 1570, with the preceding work and the 'Ship of Fools.' 5. 'A Treatise against Skelton the Poet' (*Biogr. Brit.* edit. 1788, vol. i. p. 587, note D), but which is not at present known to be extant either in print or manuscript. 6. 'The Lyfe of the glorious Martyr Saynt George,' from Mantuan, 4to. Pynson, *n. d.* dedicated to Nicholas West, Bishop of Ely. 7. 'The Introductory to write and to pronounce French, compyled compendiously at the commaundement of Thomas, Duke of Norfolke,' fol. R. Coplande, 1521. 8. 'The famous Cronycle of the Warre which the Romaynes had against Jugurth, compyled in Latyn by the renowned Sallust, and translated into Englysshe at commaundement of Thomas,

Duke of Norfolke,' fol. R. Pynson (two editions): reprinted with Paynell's translation of the 'Conspiracy of Catiline,' 8vo. J. Walley, 1557. 9. 'The Figure of our Mother Holy Church oppressed by the French King,' 4to. R. Pynson. (See Herbert's edit. of Ames, *Hist. Print.* vol. i. p. 287, from Maunsel's *Catalogue.*) Bale, Pits, and Warton, also mention translations by Barclay of the lives of St. Catharine, St. Margaret, and St. Etheldreda.

(See Tanner, *Bibl. Brit. Hib.* ut supra; Wood's *Athenæ Oxon.*; Herbert's edit. of Ames's *Typogr. Antiq.* pp. 144, 253, 287, 289, 292, 293, 579, 731, 750, 797, 798, 1783, 1785; *Biogr. Brit.*; Warton's *Hist. Engl. Poetry*, 4to. edit. vol. ii. pp. 240, 253; Lysons's *Env. of London*, edit. 1811, vol. i. p. 136.)

BARCLAY, ROBERT, a distinguished writer of the Society of Friends, was born December 23, 1648, at Gordonstown, in the shire of Moray, and not in Edinburgh, as stated by William Penn. His father was Colonel David Barclay, of Ury, the lineal representative of a family which traced its ancestry to Theobald de Berkely, a gentleman of Norman extraction, whose descendants always held a rank among the landed proprietors of Scotland: his mother was the daughter of Sir Robert Gordon, of Gordonstown, by whom he was connected with the house of Huntly. The name was changed to Barclay in the fifteenth century, by one of the family who has the reputation of having been a scholar and a poet. A matrimonial alliance with the heiress of Mathers having added to the patrimonial property a considerable estate, it became the residence of the family, who were afterwards known, for several centuries, as the Barclays of Mathers. The grandfather of Robert was so impoverished by his extravagancies, that he was compelled to sell estates that had been in the family for upwards of five hundred years, and along with the rest the lands of Mathers, in consequence of which the designation which had so long been affixed to the name was lost.

Upon these reverses, David, who was the eldest of several sons, went into the army, and served as a volunteer under Gustavus Adolphus, king of Sweden. Having attained the rank of Major, he remained abroad till the civil wars broke out in his own country, when he returned home, and became Colonel of a regiment of horse, on the side of the Royalists. On the accession of Cromwell's party to power, he retired from his military employments, married, and purchased a house at Ury, near Aberdeen, which became the seat of the family.

This gentleman had three sons. Robert, the eldest, after receiving the rudiments of his education in his native country, was sent to Paris to pursue his studies under the direction of his uncle, who was rector of the Scots College in that capital. 'Being ambitious of knowledge, and having a certain felicity of understanding,' to use his own expressions, his proficiency was so considerable as to obtain him the notice and commendation of all the professors. At the same time, his deportment and character so endeared him to his uncle, that he offered to make him his heir, and to settle a large estate immediately upon him, if he would remain in France. The offer was at once rejected. No temptation could shake his resolution when he found that his father was opposed to his continuance in a country where he had been won over to the Roman Catholic faith. When he left Paris he was in his fifteenth year.

While the son was deserting Calvinism for Popery, the father's opinions were undergoing an equally remarkable change. During a short imprisonment, from which he was liberated without anything being laid to his charge, he was converted to the views of a sect which had then existed only ten years. Further deliberation strengthened his former convictions, and he became a member of the Society of Friends.

After an interval of a few years Robert followed the example of his father, and, in the year 1667, avowed himself a Quaker. This change of opinion had not been produced without a degree of thought and investigation almost beyond his years, for he was then not more than nineteen. It also gave a decided bias to his future studies. He learned the Greek and Hebrew languages, in addition to the Latin and French, in which he had made great proficiency in France. To his other acquirements he added an acquaintance with the writings of the fathers, and with ecclesiastical history. No sect ever encountered in its origin more persecution and derision than the Quakers; though it is an error to suppose that this was owing to their adopting as a distinguishing badge certain eccentricities of dress, manners, and conversation. The Friends, at their origin, did not adopt any peculiar marks; they only dressed like all the sober religious people of that day, and abstained from all extravagancies; they kept strictly to this plainness, when all other people were frightened out of it, after the restoration of Charles II., under the stigma of puritanism. But the vicinity of Aberdeen was not more free than other parts of Britain from that misjudging spirit which affected to discover, under this garb and plainness of manners, a deep-rooted aversion to religion and civil government. The meetings of the Society, which, when not silent, breathed nothing but charity and meekness, were prohibited, and those who attended them were taken before magistrates, and committed to prison. From such intolerance even the family respectability of the Barclays did not preserve them. They bore their share in the sufferings of those times.

Robert Barclay no sooner saw how much of this ill-will arose from the misapprehensions of the public concerning the principles of the Quakers, than he set himself to correct them. A book having been written by a Scotch clergyman, embodying the principal charges which had been brought against the doctrines and views of the Quakers, he endeavoured to vindicate them, in a treatise published at Aberdeen in the year 1760, under the title of *Truth cleared of Calumnies.* A reply being made to this publication, in which all the offensive statements were repeated, Barclay put forth a rejoinder, entitled *William Mitchell Unmasked,* a performance replete with learning, which silenced his adversary, and refuted the calumnies with which the community to which he belonged had been so unjustly assailed.

In the same year that Robert Barclay became an author he married Christian, daughter of Gilbert Mollison, a merchant of Aberdeen. The character of this lady is extolled by all who speak of her. After his marriage he continued to reside at Ury, where, in patriarchal simplicity, the families lived together in the greatest happiness during the life of his father, which continued until within a short time of his own death. Two years after this event, he took the extraordinary resolution of walking through the streets of Aberdeen clothed in sackcloth and ashes. The motive and design of his making himself such a 'spectacle to men' is thus detailed in what the writer calls 'A seasonable Warning and serious Exhortation to and Expostulation with the Inhabitants of Aberdeen, concerning this present Dispensation and day of God's living Visitation towards them.' After a solemn address, he thus explains his motives for this proceeding:—'Therefore was I commanded of the Lord to pass through your streets covered with sackcloth and ashes, calling you to repentance, that ye might yet be more awakened and alarmed to take notice of the Lord's voice unto you, and not to despise those things which belong to your peace while the day lasteth, lest hereafter they may be hidden from your eyes. And the command of the Lord concerning this thing came unto me that very morning as I awakened, and the burden thereof was very great; yea, seemed almost insupportable unto me, for such a thing until that moment had never entered me before, not in the most remote consideration. And some whom I called, to declare to them this thing, can bear witness how great was the agony of my spirit; how I besought the Lord with tears that this cup might pass away from me; yea, how the pillars of my tabernacle were shaken, and how exceedingly my bones trembled until I freely gave up to the Lord's will. And this was the end and tendency of my testimony to call you to repentance by this signal and singular step, which I, as to my own will and inclination, was as unwilling to be found in, as the worst and wickedest of you can be averse from receiving or laying it to heart.' (See the remarks on this incident of Barclay's life in Jaffray's *Diary*, 2nd ed. 1834.)

Barclay believed, as the Society of Friends now do, that divine revelation is not incompatible with right reason, yet he believed, as the Friends also now do, that the faculty of reason alone, unassisted by divine illumination, is unable to comprehend or receive the sublime truths relative to that redemption and salvation which came by Jesus Christ. To show that the tenets held by the Society were capable of a rational vindication, Barclay employed all the powers of his vigorous intellect, and produced a succession of works, designed and calculated to accomplish this object. The first was an exposition of the doctrines and principles of the Quakers, bearing the following title, *A Catechism and Confession of Faith, approved of and agreed unto by*

the General Assembly of the Patriarchs, Prophets, and Apostles, Christ himself chief Speaker in and among them It is in the interrogatory portion of this publication that the author shows his skill in giving to his own views the countenance of Scripture The answers are all given in the language of the Bible This was followed by a more scholastic work, called *Theses Theologica*, comprising, in fifteen propositions the doctrines maintained by the Quakers To this work he invited the attention of the learned by addressing it to the clergy of every denomination, and, as it met with a favourable reception, he made these propositions the heads of a more elaborate treatise, brought out two years later under the title of *An Apology for the true Christian Divinity as the same is held forth and practised by the People called, in scorn, Quakers* Both these performances were originally printed in Latin, and afterwards translated by the Author and published in English In style and execution they have been deservedly admired They have stood the test of criticism, and will challenge a comparison with the best productions of the same class The effect produced by them in altering the tone of public opinion was not immediately visible, but it was proved beyond dispute that this proscribed sect professed a system of theology that was capable of being defended by strong if not unanswerable arguments Some portions of it became the subject of controversial discussion, the assumption of inward light being supposed by many to set aside the supreme authority of Scripture, and the denial of the perpetuity of baptism and the Lord's Supper occasioning a suspicion of infidelity On this supposed tendency of the system it was warmly attacked by John Brown in a work to which he gave the title of *Quakerism the Pathway to Paganism* now little known and less read

The propositions in the Apology being enunciated and maintained with logical acuteness were much canvassed in various seats of learning In the Netherlands they met with an antagonist in Nicholas Arnold a professor in the University of Franeker, who published his objections to which Barclay replied and in the same year they gave rise to an oral discussion between some students in the University of Aberdeen on the one side, and the author, assisted by his friend George Keith on the other No part of 'The Apology was controverted by so many opponents as that in which the necessity of an inward and immediate revelation was insisted upon It was the only portion of the work which could be considered original The other doctrines contained in it had all been maintained by abler defenders, their arrangement in the Quaker system of theology being the only point in which they differed from the Arminian scheme None of the numerous publications in which this leading tenet of the new faith was attempted to be disproved called forth a reply from the writer but having been requested by Adrian Piets an ambassador from the court of the Netherlands, with whom he had some conversation on the principles of the Friends, to reconsider the strength of some objections which he had advanced against them, Barclay addressed him in Latin on the subject, while he was in the prison at Aberdeen reviewed his former arguments, and declared himself more convinced of their truth than he had ever been The translation of this letter into English was his last literary labour It was during this imprisonment that Barclay addressed a letter to James Sharp Archbishop of St Andrews, who was suspected of being the cause of much of the persecution of those times

The discipline or church government of the Society of Friends was as much defamed as their religious opinions It could not be denied, that in their forms of worship, of marriage and of burial there was a wide departure from the customary ceremonial, and it was generally understood that the society carried its interference to a great extent in the private concerns of those who belonged to its communion These regulations were vindicated by Barclay in a work wherein he contrasts the internal government of the Quakers with the anarchy of the Ranters, and the hierarchy of the Romanists, justifying the discipline of his sect, and defending its members 'from those who accuse them of confusion and disorder, and from such as charge them with tyranny and imposition The publication of this treatise engaged its author in a long altercation with some persons of his own persuasion, who took offence at various parts of it, as tending to violate the rights of private judgment and to restrain the operations of the Spirit. Their opposition, being discountenanced by the society, soon passed away, and the work itself rose into such favour among the sect, that its title was changed, at one of its yearly meetings, to *A Treatise on Christian Discipline*, and it became the standard authority on all matters to which it relates

The importance attached by Robert Barclay to the internal order of the body, and his desire to preach the gospel (which was indeed his strong motive), induced him to accompany William Penn and George Fox to Rotterdam and Amsterdam, for the purpose of consulting the Friends in the Netherlands on some important regulations connected with their system of church government For the promotion of this and other objects connected with the prosperity of the society, he frequently went to London to attend its annual meetings His character and connexions gave him influence in quarters where the presence of such a man might be supposed to be least welcome He was known at court, where he was well received, and treated with marked respect by Charles II The circumstances which first led him to the palace are but imperfectly known His father had been a sufferer in the civil wars and the predilections of the family were known to be in favour of the Stuart dynasty Beyond this, we possess no information His dedication to Charles II at the beginning of *The Apology* so justly admired for its high tone of patriotism and independence, shows, that whatever else might have secured him such a continuance of royal favour it was not servility or flattery He was probably indebted to the friendship of Elizabeth Princess Palatine of the Rhine a woman of religious character whom he twice visited at her little court The respect in which this lady held Robert Barclay and the principles of the Quakers was unreservedly expressed in her letters to different individuals connected with the English court and her good offices were more than once exerted to preserve this persecuted sect from the penalties of those laws which interdicted the exercise of public worship in conventicles, as all meeting-houses were then denominated

In 1679 Barclay obtained a charter from Charles II for erecting his lands at Ury into a free barony with civil and criminal jurisdiction for him and his heirs which was afterwards ratified by act of parliament the preamble of which states it to be 'for the many services done by Colonel David Barclay and his son the said Robert Barclay to the King and his most royal progenitors in times past' This privilege was enjoyed by the family until the tenure of all such grants was extinguished in Scotland in the reign of George II During this year he was again employed in writing in defence of his *Apology*, and his treatise on *Discipline*—his two chief works He had previously declared his opinion that all war was indefensible on the ground of its incompatibility with the principle of universal benevolence He wrote two tracts on this subject, one of which was addressed to the ambassadors of the several princes of Europe then assembled at Nimeguen to each of whom he forwarded his tract, accompanied with a copy of his principal work, *An Apology for the True Christian Divinity*

In 1682 he was appointed governor of the province of East Jersey in North America, by the proprietors, among whom was his particular friend, the Earl of Perth Although considerable inducements and privileges were offered to ensure his acceptance of this appointment, all of which were secured to him and his family by royal signature, he was unwilling to quit his native country, and only availed himself of the power with which he was invested, of sending a deputy His two brothers afterwards went to settle there, the youngest of whom died on the passage

The few latter years of Robert Barclay's life were spent in the quiet of his family, in which his mild and amiable virtues found their happiest sphere of exercise He was in London for the last time in the memorable year of 1688, and, as usual, paid a visit to James II Being with him near a window, the king looked out, and observed that the wind was fair for the Prince of Orange to come over, Barclay replied, 'It was hard that no expedient could be found to satisfy the people. The king declared he would do anything becoming a gentleman, except parting with 'liberty of conscience which he never would while he lived'

After this interview, which immediately preceded the downfall of the Stuart race of kings, Barclay lived but two years His death was occasioned by a violent fever, which came on immediately after his return from a religious visit to some parts of Scotland. He died October 3, 1690, in the

forty-second year of his age, having survived his father only four years. His family consisted of three sons and four daughters, all of whom, along with their mother, survived him; and what is still more remarkable, his children were all living fifty years after his death. The last of them, Mr. David Barclay, a mercer in Cheapside, is said to have entertained three successive monarchs, George I, II, III, when they visited the city on Lord Mayor's day.*

The intellectual superiority of Barclay places him at the head of all the writers of his sect. His works contain the only systematic view of their opinions and principles. In his moral character he was free from every reproach, and his temper was so well regulated, that he was never seen in anger. In all the relations of life and in his intercourse with the world, he was conspicuous for the exercise of those virtues which are the best test of right principles, and the most unequivocal proof of their practical influence.

A memoir of Robert Barclay is one of the desiderata of our biography. In the above notice we have been chiefly indebted to his works in three volumes, and to *A Short Account of the Life and Writings of Robert Barclay*, a very scarce book, written, it is reported, by Joseph Gurney Bevan, one of the Society of Friends. (See also Jaffray's *Diary*, &c., by John Barclay, above referred to.)

BARCOCHEBAS (שמעון בר כוכבא Shimeon Bar Cochba) *the Son of the Star*, was the title of a false Messiah, who applied to himself the prophecy of Balaam 'There shall come a star out of Jacob, and a sceptre shall rise out of Israel,' &c. After the pretensions of Bar Cochba were refuted by the event, he was called בן כוזיבא Ben Coziba, *the Son of Lying*. The history of Bar Cochba in its connexion with the events of his times will remove the historical difficulties mentioned in the article ÆLIA CAPITOLINA.

Trajan persecuted both the Jews and the Christians. His animosity towards the Jews was probably increased during his expedition against the Persians, A.D. 106. At least we see that he became more zealous in his persecution about A.D. 108. It is not unlikely that the Jews, who had a famous school at Nisibis under the direction of different members of the family of P[illegible], assisted in the defence of the city against Trajan, and thus excited the indignation of the emperor. The oppression experienced by the Jews stimulated them to rebellious commotions, and they put to death many thousands of Greeks in Cyprus, Cyrene, and other places, when Trajan removed the legions from these provinces at the commencement of his second expedition against the Parthians, about A.D. 115 and 116. It seems that the journey of Rabbi Aquiba to Africa and Mesopotamia was connected with the insurrectionary commotions among the Jews. Aquiba preached the approach of the kingdom of the Messiah, whom he considered to have appeared in the person of Bar Cochba, and in the same year a rebellion broke out in Mesopotamia. Lucius Quietus, having subdued the rebels, was appointed by Trajan governor of Palestine. Many rabbies were executed under the government of Quietus in the north of Palestine, especially in Chalcis. After the death of Trajan, A.D. 118, the Emperor Hadrian deprived the ambitious Quietus of his office, and appointed J. Annius Rufus governor in his stead. This man (whom the Talmudists erroneously call Turnus Rufus, and whom some rabbies style emperor) adopted very harsh measures against the Jews, who consequently began secretly to collect arms, A.D. 120. Aquiba, who had declared himself in favour of Bar Cochba, was with many other rabbies cast into prison. Soon after the return of Hadrian from his second journey to the East, about A.D. 130, the rebellion broke out. Shimeon Bar Cochba gained influence partly by a reputation for miraculous powers, and partly by his intrepidity. Maimonides, however, in his יד החזקה, chapter xi. of הלכות מלכים, says, 'It may not come into thy mind that the king Messiah should necessarily perform signs and wonders. This is not the case, as showeth the great and wise Rabbi Akiba, who was one of the wise men of the Mishnah and the armour-bearer of the king Ben Coziba, whom he declared to be the king Messiah, and deemed him, with all the wise men of his generation, to be the king Messiah, until Ben Coziba was killed in his sins. And the wise men did not demand of *Bencoziba* either a sign or a wonder.' His followers, the number of whom increased rapidly, fortified the summits of various hills and mountains, concealed arms in caves, commenced a guerrilla warfare against the Romans, and cruelly persecuted the Christians who refused to join them. Bar Cochba took Jerusalem about A.D. 132 without difficulty, as the garrison had probably left the town to attack the rebels. He issued coins, having on one side his own name and on the other 'Freedom of Jerusalem.' These coins are probably the same which occur under the name of *Cozbioth*, which, according to some rabbies, may mean either *false coins*, or coins of Coziba, or coins of the town כזיב, Gen. xxxviii. 5. In the British Museum is a coin ascribed by some to Simon the Maccabee, corresponding to the description given by Tychsen and others of a coin of Barcochba. One side of this coin represents a portion of four columns, in the midst of which is a lyre; a serpentine stroke below is said to represent the brook of Kidron, and a star seems to allude to Numb. xxiv. 17. The other side has a vessel of manna and a leaf. The two legends are in coin characters שמעון and לחרות ירושלם. Munter concluded from a similar coin that Barcochba had commenced the rebuilding of the temple; but Nicephorus Callist. (*Hist. Eccl.* iii. c. 24) and Cedrenus (*Script. byz.* xii. p. 249) say only that the Jews intended to rebuild the temple. Rabbi Abraham Ben Dior, in his סדר הקבלה, and other Jewish writers state, but no credit is due to the statement, that after the death of Barcochba his son Rufus succeeded to the throne, and was himself succeeded by his son Romulus.

The taking of Jerusalem so animated the courage of the friends of liberty that Rufus was no longer able to resist them. The rebels occupied 50 fortified places, and 985 villages.

On this the Emperor Hadrian ordered his most able commander, Julius Severus, to leave his post in Britain, and to repair to Palestine, but the time which elapsed during his journey was favourable to the rebels. After his arrival, Julius Severus wisely avoided battles, but took a number of fortified places before he marched against Jerusalem, which he took and destroyed, after sustaining great losses. The Jews after the capture of the city concentrated their forces in the mountain fortress of Bether, which was probably the same as Bethhoron, in the neighbourhood of Bethlehem, on the north-west side of Jerusalem. While Julius Severus was gradually reconquering the country, Bar Cochba still played the king in Bether for three years, and on the unfounded suspicion of treason, executed the learned Eleazar of Modin, who having prayed for the welfare of the fortress, was slandered by a Cuthite (*i.e.* a Samaritan), as if he intended to betray Bether to Hadrian. According to Talmudical statements, Bether was taken A.D. 135, by the Romans, on the 9th day of the month of Ab, the anniversary of the burning of the temple under Titus. It has been stated that on this occasion 580,000 Jews perished, but this must be greatly exaggerated. Bar Cochba fell in the combat, and his head was brought into the Roman camp. Aquiba, and many rabbies who were considered authors of the rebellion, were put to a cruel death.

(See Aquiba, and *Allgemeine Geschichte des Israelitischen Volkes*, von Dr. J. M. Jost, vol. ii., from A.D. 107 to 135; *Sepher Juchasin*, ed. Cracow, pp. 25-35; *Seder Haddoroth*, p. 43; *Tsemach David*, to the year of the Jewish era 3880, and other Jewish chronographers, who refer to the respective passages of the Talmuds of Babylon and Jerusalem; *Tractatus Talmudicus Babyl.* Gittin, fol. 57, apud Joh. a Lent, *de Judæorum Pseudo-Messiis*.)

BARD, an appellation of uncertain etymology, chiefly appropriated to the earliest poets of the Celtic tribes.

Lucan (lib. i. p. 447) describes the office of the bard, and gives his very name:—

[illegible]
[illegible]
[illegible]

[illegible]
[illegible]
[illegible]
[illegible]—ROWE.

Tacitus uses a term not found in any other writer, which seems derived from the name of bard. He says the Germans used songs, by the recital of which, called barditus, they sought to increase the fury of their warriors, and from the effect of the song drew omens as to the issue of the coming battle. (*Germania*, 3.)

The information, however, which remains to us from classical sources relating to the bards is, for the most part, scanty and detached. Strabo (p. 197) says that the bards (βαρδοι) were singers of hymns and poets among the Gauls.

They were, no doubt, originally spread over the greater part of Western Europe, but gave way to southern civilization; and it is from their latest retreats only, in Wales and Ireland, that we gain our best materials for their history.

Warton says the bards of Britain were originally a constitutional appendage of the Druidical hierarchy. In the parish of Llanidan, in the Isle of Anglesey, there are still to be seen the ruins of an archdruid's mansion, which they call *Trer Drew*, that is, the Druid's mansion: near it are marks of the habitations of the separate conventual societies which were under his immediate orders and inspection. Among these is *Trer Beird*, or, as they call it to this day, the hamlet of the bards. (Rowland's *Mona*, pp. 83, 88.) But so strong was the attachment of the Celtic nations (among which we reckon Britain) to poetry, that amidst all the changes of government and manners, even long after the order of Druids was extinct, and the national religion altered, the bards, acquiring a sort of civil capacity and a new establishment, still continued to flourish. And with regard to Britain, the bards flourished most in those parts of it which most strongly retained their native Celtic character. The Britons living in those countries that were between the Trent or Humber and the Thames, by far the greatest portion of this island, in the midst of the Roman garrisons and colonies, had been so long inured to the customs of the Romans, that they preserved very little of the British; and from this long and habitual intercourse, before the fifth century, they seem to have lost their original language. We cannot discover the slightest trace, in the poems of the bards, the lives of the British saints, or any other antient monument, that they held any correspondence with the Welsh, the Cornish, the Cumbrian, or the Strathcluyd Britons. Among other British institutions grown obsolete among them, they seem to have lost that of bards: at least there are no memorials of their having had any, nor any of their songs remaining; nor do the Welsh or Cumbrian poets ever touch upon any transactions that passed in those countries after they were relinquished by the Romans.

And here we see the reason why the Welsh bards flourished so much and so long. But moreover the Welsh, kept in awe as they were by the Romans, harassed by the Saxons, and eternally jealous of the attacks, the encroachments, and the neighbourhood of aliens, were on this account attached to their Celtic manners: this situation and these circumstances inspired them with a pride and an obstinacy in maintaining a national distinction, and in preserving their antient usages, among which the bardic profession is so eminent. (Warton, *Hist. Engl. Poet.* vol. i. Diss. 1.)

By the laws of Hoel Dha, given about the year 940, the *Bardd Teulu*, or court-bard, was a domestic officer. He occupied the eighth place in the prince's court: he held his land free: the prince was to allow him a horse and a woollen robe, the queen a linen garment. At the three principal feasts, Christmas, Easter, and Whitsuntide, he was to sit next to the prefect of the palace, who delivered the harp into his hand; and at the same festivals he was to have the robe of the *disdain*, or steward, for his fee. When a song was required, the bard who had gained the badge of the chair (in musical contest) was first to sing a hymn in glory of God, after that another in honour of the prince, and then the Teuluwr, or bard of the hall, was to sing some other subject. If the queen desired a song, the bard was to attend in her chamber. When he accompanied the prince's domestic servants upon a foray, he was to have an ox or a cow given to him from the booty, and while the prey was dividing he was to sing the praises of the British monarchy. He was also to sing the praises of the British monarchy at the head of the detachment when drawn up for fight. This, says Pennant (*Tour in Wales*, edit. 1784, vol. i. p. 461), was to remind them of their antient right to the whole kingdom; for their inroads being almost always on the English territories, they thought they did no more than seize on their own. When invested with his office, the prince was to give the bard a harp, and the queen a ring of gold. Some copies of Hoel Dha's constitutions say a chess-board instead of a harp. The harp was on no account to be parted with. The bard was to lodge with the prefect of the palace. When he went out of the palace to sing with other bards he was to receive a double portion of the largesse or gratuity. If he asked any gift or favour of the prince, he was to be fined by singing an ode or poem; if of a nobleman, three; if of a common person, he was to sing till he was weary or fell asleep. Any slight injury perpetrated on the royal bard was to be compensated by a fine of six cows and a hundred and twenty pence; his murder at a hundred and twenty-six cows. The marriage-fine of his daughter was estimated at a hundred and twenty pence. Her nuptial present was thirty shillings, and her dower three pounds. (See the *Leges Wallicæ*, edited by Wotton, fol. Lond. 1730, lib. i. cap. 19, pp. 35, 36, 37.)

The *Pencerdd Gwlad* was another domestic bard of the higher order, who frequented the courts of the Welsh princes, though he was not a regular officer of the household. His privileges are described in the *Leges Wallicæ*, lib. i. cap. xlv. pp. 68, 69. See also Pennant's *Tour in Wales*, ut supra, p. 462.

Pennant says, 'The bards of Wales were supposed to be endowed with powers equal to inspiration. They were the oral historians of all past transactions, public and private. They related the great events of the state; and, like the Scalds of the northern nations, retained the memory of numberless transactions, which otherwise would have perished in oblivion. They were likewise thoroughly acquainted with the works of the three primary bards, viz. Myrddyn ap Morfryn, Myrddyn Emrys, and Taliesin ben Beirdd. But they had another talent, which probably endeared them more than all the rest to the Welsh nobility, that of being most accomplished genealogists, and flattering their vanity, in singing the deeds of an ancestry derived from the most distant period.'

The Welsh bards were reformed and regulated by Gryffyth ap Conan, king or prince of Wales, in the year 1078. (Warton, *Hist. Eng. Poet.* dissert. ut supra.)

Pennant gives a minute account of the Eisteddfods, or sessions of the bards and minstrels, which were held in Wales for many centuries: one was held at the town of Caerwys; another at Aberfraw in Anglesea, for the bards of that island and the neighbouring county; and a third at Mathraval, for those of the land of Powis. The reason that those places were thus distinguished was because the two last were the residence of princes; and Caerwys, on account of the royal palace that stood below the town, the residence of Llewelyn ap Gryffydd.

At these eisteddfods, which Pennant terms the British Olympics, none but bards of merit were suffered to rehearse their pieces, and minstrels of skill to perform. These went through a long probation: judges were appointed to decide on their respective abilities; and suitable degrees were conferred, and permissions granted for exercising their talents in the manner already described. In the earlier period, the judges were appointed by commissions from the Welsh princes; and after the conquest of Wales, by the kings of England, notwithstanding that Edward I., according to constant tradition, exercised great cruelty over the bards of his time; yet future princes thought fit to revive an institution so likely to appease as well as soften the manners of a fierce people. The crown had the power of nominating the judges, who decided not only on the merit but the subject of the poems, and as our modern lord chamberlains used to do, were certain of licensing only those which were agreeable to the English court.

A commission for holding an eisteddfod at Caerwys, in 1568, was, in Pennant's time, in the possession of Sir Roger Mostyn, together with the silver harp, which had from time immemorial been in the gift of his ancestors, to bestow on the *chief of the faculty*. This badge of honour was about five or six inches long, and furnished with strings equal to the number of the Muses. The commission, of which Pennant has given the form (as well as an engraving of the harp), is the last which was granted. It was dated 23d Oct. 9 Eliz. In consequence, an eisteddfod was held on the 26th May following, when various persons received degrees, some as chief bards of vocal song, others as primary, secondary, or probationary students; and many more as bards, students, and teachers of instrumental song upon the harp and crwth. Players on crwths with three strings, taborers, and pipers, were reckoned among the ignoble performers; they were not allowed to sit down, and had only a penny for their pains. The degrees consisted of four in the poetical, and five in the musical faculty. For the full details relating to them the reader is referred to Pennant, ut supra, p. 467—474. The laws of Gryffyth ap Conan recognise the distribution of the classes.

'No public festivity,' says Pennant, 'great feast, or wedding could be duly solemnized without the presence of the

bards and minstrels. A glorious emulation arose among them; and prizes were bestowed on the most worthy. In 1176 the Lord Rhys, prince of South Wales, made a great feast at Christmas, on account of finishing his new castle at Aberteifi, of which he proclaimed notice through all Britain a year and a day before: great was the resort of strangers, who were nobly entertained, so that none departed unsatisfied. Among deeds of arms, and variety of spectacles, Rhys invited all the bards of Wales, and provided chairs for them, which were placed in his hall, where they sat and disputed, and sang, to show their skill in their respective faculties; after which he bestowed great rewards and rich gifts on the victors. The bards of North Wales won the prizes; but the minstrels of Rhys's household excelled in their faculty. On this occasion the Brawdwr Llys, or judge of the court, an officer fifth in rank, declared aloud the victor, and received from the bard for his fee a mighty drinking-horn, made of the horn of an ox, a golden ring, and the cushion on which he sat in his chair of dignity.' (Pennant, ut supra, p. 475.)

Since the days of Queen Elizabeth, as has been already said, no royal commission has been issued for holding an eisteddfod; but individual and collective exertions have not been wanting of later years, not only for the revival of the bardic profession, but for the general cultivation and encouragement of Welsh literature. The Gwyneddigion Society was established for this purpose in 1770, and the Cambrian Society in 1818. Annual meetings have also been held for the recitation and reward of prize-poems and performances upon the harp; and another society, since formed, immediately under royal patronage, called The Cymmrodorion, or Metropolitan Cambrian Institution.

The Irish carry the history of their bards to the earliest date of the supposed Milesian invasion. The details of that history, in a diffuse form, are given in Walker's *Memoirs of the Irish Bards*, 4to. Lond. 1786.

These bards were of three classes: 1. The *Ollamhain Re-dan*, or *Filidhe*, were poets who turned the tenets of religion into verse; they animated the troops before and during an engagement, and raised the war song. 2. The *Breitheamhain* (Brehons), or legislative bards, who promulgated the laws in a kind of recitative, or monotonous chant, seated in the open air. 3. The *Seanachaidhe* were antiquaries, genealogists, and historians; they recorded remarkable events, and preserved the genealogies of their patrons in a kind of unpoetical stanza. Each province and chief had a Seanacha. Besides these three orders of bards, there was another of an inferior kind, composing the *Cleananaigh*, *Crutairigh*, *Clotairigh*, *Tiompanach*, and *Cuilleannach*, all of whom took their several names from the instruments on which they professedly played. The head of this order was entitled *Ollamh-Reccol*. The profession of these, as well as that of the higher classes of the bards, was hereditary.

Warton says, we are informed by the Irish historians that St. Patrick, when he converted Ireland to the Christian faith, destroyed three hundred volumes of the songs of the Irish bards. Such was their dignity in this country, that they were permitted to wear a robe of the same colour with that of the royal family. They were constantly summoned to a triennial festival, and the most approved songs delivered at this assembly were ordered to be preserved in the custody of the king's historian or antiquary. Many of these compositions are referred to by Keating as the foundation of his *History of Ireland*. Ample estates were appropriated to them, that they might live in a condition of independence and ease. The possession was hereditary; but when a bard died, his estate devolved not to his eldest son, but to such of his family as discovered the most distinguished talents for poetry and music. Every principal bard retained thirty of inferior note as his attendants, and a bard of the secondary class was followed by a retinue of fifteen. They seem to have been at their height in the year 558. (See Keating's *History of Ireland*, pp. 127, 132, 370, 380, and pref. p. xxiii; Warton, *Hist. Engl. Poet*, vol. i. Dissert. i. p. 46, note [e].

According to Warton, the songs of the Irish bards are by some conceived to be strongly marked with the traces of Scaldic imagination, and these traces are believed still to survive among a species of poetical historians, whom they call *tale-tellers*, supposed to be the descendants of the original Irish bards. A writer of equal elegance and veracity relates, 'that a gentleman of the north of Ireland has often told me of his own experience, that in his wolf-huntings there, when he used to be abroad in the mountains three or four days together, and laid very ill in the night, so as he could not well sleep, they would bring him one of those tale-tellers, that when he lay down would begin a story of a king, or a giant, a dwarf, and a damsel.' (Sir William Temple's *Essays*, part iv. p. 349.) In a subsequent passage he adds, 'we have already seen that the Scandinavian Scalds were well known in Ireland, and there is sufficient evidence to prove that the Welsh bards were early connected with the Irish. Even so late as the eleventh century, the practice continued among the Welsh bards of receiving instructions in the bardic profession from Ireland.' The Welsh bards were reformed and regulated, as has been already noticed, by Gryffyth ap Conan, king of Wales, in 1078. At the same time he brought over with him from Ireland many Irish bards, for the information and improvement of the Welsh. Powell acquaints us, that this prince 'brought over with him from Ireland divers cunning musicians into Wales, who devised, in a manner, all the instrumental music now there used, as appeareth as well by the books written of the same, as also by the names of the tunes and measures used among them to this day.' (*Hist. of Cambr.* edit. 1584, p. 191.)

The harp said to have belonged to Brien Boiromh, king of Ireland, who fell in the hour of victory against the Danes on the plain of Contarf near Dublin, in 1014, is preserved, as a relic of bardism, in the Museum of Trinity College, Dublin, to which it was presented by the Right Honourable William Conyngham, in 1782.

Spenser (*View of the State of Ireland*, fol. Dubl. 1633, p. 52) gives no favourable idea of the Irish bards of his time. He speaks of them as 'so far from instructing young men in moral discipline, that they themselves do more deserve to be sharply disciplined; for they seldom use to choose unto themselves the doings of good men for the arguments of their poems.' He continues, 'If a young mind cannot rest, if he be not still busied in some goodness, he will find himself such business as shall soon busy all about him. In which, if he shall find any to praise him, and to give him encouragement, as those Bards and Rythmers do for little reward, or a share of a stolen cow, then waxeth he most insolent and half mad with the love of himself, and of his own lewd deeds. And as for words to set forth such lewdness, it is not hard for them to give a goodly and painted show thereunto, borrowed even from the praises which are proper to virtue itself. As of a most notorious thief and wicked outlaw, which had lived all his lifetime of spoils and robberies, one of their bards in his praise will say, that he was none of the idle milk-sops that was brought up by the fireside, but that most of his days he spent in arms and valiant enterprises; that he did never eat his meat before he had won it with his sword; that he lay not all night slugging in a cabin under his mantle, but used commonly to keep others waking to defend their lives, and did light his candle at the flames of their houses, to lead him in the darkness. That the day was his night, and the night his day; that he loved not to be long wooing of wenches to yield to him, but, where he came, he took by force the spoil of other men's love, and left but lamentation to their lovers; that his music was not the harp, nor lays of love, but the cries of people and clashing of armour; and finally, that he died not bewailed of many, but made many wail when he died, that dearly bought his death.' This song, he adds, when it was first made and sung to a person of high degree in Ireland, was bought (as their manner is) for forty crowns.

(For further information, exclusive of the works already quoted, the reader may consult Evans's *Dissertatio de Bardis*; Jones's *Musical and Poetical Relics of the Welsh Bards, with a History of the Bards and Druids*, 4to. Lond. 1794; Sir Richard Colt Hoare's *Giraldus Cambrensis*, vol. i. p. 300—319; and Beauford's *Origin and Learning of the Irish Bards*.)

BARDSTOWN, or **BAIRDSTOWN**, is the principal town in Nelson County, Kentucky, in the United States of America, and at the census of 1830 contained 1625 inhabitants. The town is situated on the head-waters of Salt River, and is about 50 miles S.E. from Louisville, and 606 miles from Washington. The place has improved rapidly during the last few years. A macadamised road has been commenced between it and Louisville, which it is thought will still more advance its prosperity. At present Bardstown is only of importance for its Roman Catholic College of St. Joseph, founded in 1819. This establishment, which is under the direction of Roman Catholic

clergymen, has accommodation for 200 pupils. The number of professors and teachers, in 1833, was 14. The library contains about 5000 volumes; and there is a good philosophical apparatus. St. Thomas's seminary, four miles from Bardstown, was established in 1811. It is under the direction of the Bishop of Bardstown, and is an appendage to the College of St. Joseph. (Thompson *Alcedo; American Almanac*, 1832, 1833, and 1834.)

BARDSEY, a small island in the Irish Sea, belonging to Carnarvonshire, in North Wales, near the north point of Cardigan Bay. Its distance from the nearest point of the promontory of Braich y Pwll, in Carnarvonshire, is about two miles and a half: its length is somewhat more than two miles by one in breadth, comprising about 370 acres of land, of which nearly a third is occupied by a mountainous ridge, which only affords food for a few sheep and rabbits. The island is sheltered on the north and north-east by the above elevation, the sea front of which presents perpendicular and projecting cliffs, in which the hazardous trade of taking eggs, by the adventurer being let down by a rope from the top of the cliff, is practised during the resort of puffins and other migratory birds in the spring season. Bardsey is only accessible to the mariner on the south-east side, where there is a small well-sheltered harbour, capable of admitting vessels of thirty or forty tons burden. The soil of the island is chiefly argillaceous and is tolerably fertile, producing excellent barley and wheat. No reptile is ever seen in the island, except the common water-lizard, a circumstance which is accounted for by the want of sheltering woods. The island belongs, or did belong lately, to Lord Newborough, and its rental was a hundred guineas a-year, let out in three bargains. The population, in 1831, was eighty-four, half of whom were males.

The present name of the island is probably derived from its having formed a refuge to the bards. It was also called the 'Isle of Saints' and *Ynis Enlli*, or the 'island of the current,' on account of the rapid current which sets in between it and the main land, and which renders the passage difficult and rather unsafe. The name of 'Isle of Saints' is said to have arisen from the circumstance, that after the massacre at Bangor the surviving monks fled hither for refuge. It is certain that Bardsey became at an early period a seat of religious recluses; and although the precise period when its celebrated abbey was founded is not known, it is concluded that a religious house must have existed there prior to 1516, when Dubricius, Archbishop of Caerleon, having resigned his archbishopric, retired thither. The monks of this abbey are stated in monkish legends to have enjoyed, while they continued virtuous, the peculiar privilege of dying in regular succession, the oldest going first, so that it was always known whose turn would be next; but this privilege was withdrawn when they became corrupt. At the dissolution, the revenues of the abbey amounted to the gross sum of 58*l.* 6*s.* 2½*d.*, the clear revenue amounting to 46*l.* 1*s.* 4½*d.* Its site is now only discoverable by numerous graves lined with stone, and a large antient building, said to have been the abbot's lodge, now occupied in tenements by some of the inhabitants. A singular ruined chapel or oratory, not far distant, consists of a long vaulted room, with an insulated stone altar near the east end. On Sundays, in bad weather, one of the inhabitants reads the liturgy in this chapel to the rest, but the regular parochial duties are performed at the parish church of Aberdaron, on the opposite promontory. (Pennant's *Tour in Wales*: Bingley's *North Wales*; Evans's *Beauties of North Wales*; Dugdale's *Monasticon*, edit. 1823.)

BAREILLY, an extensive district in the province of Delhi, in Hindustan, situated between 28° and 30° N. lat. This district formed part of Rohilcund previous to the conquest of that country, in 1774, by the British acting in the name of Shuja ud Dowlah, vizier of Oude. In 1801 the district of Bareilly was ceded to the East India Company by the vizier, now king of Oude, in return for a pecuniary subsidy, and in consideration of the military aid afforded by the British against the menaced invasion by Zemaun Shah, the king of the Afghans, whose avowed object it was to restore the power of the Mogul emperors.

Bareilly is bounded on the north by the Kumaon hills, on the south and east by the remaining territory of the king of Oude, and on the west it has Moradabad, Allighur, and Furuckhabad. In the Institutes of Akbar, this district is described under the name of Budayoon: its name before the conquest by the Rohillas was Kuthair.

The district of Bareilly is for the most part level, and being abundantly watered by the Ganges, which forms its boundary to the west, and by many small streams, the soil is generally productive. According to a survey made in 1815, the district contained 4,458,380 small begahs of land in cultivation, which yielded a revenue of 2,266,280 rupees (226,628*l.*) At that time there were 3,362,022 begahs fit for cultivation, but not under tillage, and 3,558,899 begahs of entirely waste land. The begah is about one-third of an English acre.

The vegetable productions of Bareilly are the same as are usually cultivated in the northern parts of Hindustan. The only description of produce which requires any particular remark is a species of rice called *basmati*, signifying perfumed, which is considered to be superior in quality to the best rice exported to Europe from Patna. Sugar-canes and grain are among the objects of cultivation.

In summer, notwithstanding its northern position, the heat of the district is excessive; but during the winter the winds which blow from the Snowy Mountains on the north make the air so cold, that the thermometer is sometimes seen below the freezing point, and water is frozen even when placed under the shelter of a tent.

The district contains several considerable towns. These are, in addition to Bareilly the capital, Budayoon, Chundowsy, Chilkeah, Cossipoor, Pillibeet, Rampoor, and Shahjehanpoor.

Budayoon, situated in 28° 4′ N. lat. and 78° 58′ E. long., is a very antient place. It was a flourishing town when conquered by the Mohammedans in 1203, and is so mentioned by Abul Fazl; but it is no longer of any importance. Chundowsy, in 28° 26′ N. lat. and 78° 38′ E. long., carried on a great trade in salt before the cession of the district to the English. Chilkeah, in 29° 24′ N. lat. and 79° 5′ E. long., is a place of importance as one of the principal marts of trade with Kumaon, and through that district with Tibet and Tartary. A kind of fair is held here at certain seasons of the year, when temporary huts or booths are erected, in which are exposed for sale English woollen and cotton cloths, and shawls the product of Indian looms. Cossipoor, in 29° 11′ N. lat. and 78° 16′ E. long., is a place of great trade with the countries to the north, and contains several wealthy inhabitants. A tank, to which great sanctity is attributed, is the cause of many Hindu pilgrims visiting this town, which likewise contains several temples. Pillibeet, in 28° 42′ N. lat. and 79° 42′ E. long., is built on the banks of the Gurrah, which is navigable only during the rainy season. This town carried on a considerable trade previous to its cession to the English, which it then, for the most part, lost, but its commerce is now somewhat reviving. The town is celebrated as being the principal place of sale for a particularly fine description of rice, noted all over Upper Hindustan for its brilliant whiteness, and known in commerce as Pillibeet rice. A very elegant mosque was built here during the dominion of the Rohillas. The towns of RAMPOOR, SHAHJEHANPOOR, and BAREILLY, require more detailed notices.

The roads and bridges are generally better maintained in Bareilly than in most parts of Hindustan, and the hackery or cart employed for the conveyance of goods is more commodious than that used in the lower provinces. The trade with Kumaon, and with the countries beyond to the north, is mostly managed by means of goats, which carry their loads to very great distances, even as far as Tibet, across the mountains: this trade consists principally in chintzes, salt, raw sugar, cotton goods, cutlery, and trinkets.

Between the date of its conquest in 1774, and its cession to the East India Company in 1801, Bareilly declined considerably in prosperity, owing to misgovernment; and large tracts of land, which had previously been under cultivation, were allowed to run waste. The system of order and the security for property which have followed the establishment of British authority, have restored its antient prosperous condition, which is said to be progressively advancing.

The natives of this district are a tall and handsome race of men. Formerly a considerable part of the male population followed the trade of war, serving readily under any chief who would take them into pay. The armies of Holkar and of Jeswunt Rao were partly recruited from Bareilly. The sovereignty of the English put a stop to this state of things, and for a time the people, thus deprived of their favourite occupation, were in consequence unfriendly to the British government; by degrees, however, they have

been weaned from this turbulent disposition, and have turned to peaceable employments Mohammedans and Hindus are said to be nearly equal in numbers in this district, but no census or classification has ever been made by which the exact proportions could be ascertained.

(Mill's *History of British India*; Papers in Appendix to *Reports of Committee of House of Commons on the Affairs of India*)

BAREILLY, the capital town of the district Bareilly, is situated in 28° 23 N lat, and 79° 16′ E long This town stands on an elevated spot near the banks of the united stream of the Jooah and Sunkra rivers, about forty miles N W of the Ganges. It came into possession of the British in 1801, at the time of the cession to them of the district of Bareilly, and was then made the seat of a civil establishment and a circuit court, having jurisdiction over nine other subordinate districts

The town of Bareilly is extensive when a survey was made in 1822 it was found to contain 13,926 houses and shops, and 65 795 inhabitants of these about two thirds were Hindus, and one-third Mohammedans The principal street is nearly two miles in length, and the houses although low (many of them having only one story) are well built in some other parts of the town the houses are little better than huts The civil and military servants of the East India Company reside in cantonments outside the town to the south, where a kind of citadel has been built, strong enough to protect the European inhabitants from any attack of the natives The building of this fortification was undertaken after the quelling of an insurrection of the natives in 1816 which broke out in consequence of an attempt on the part of the government of the East India Company to impose a small tax to defray the expense of the local police this insurrection was not suppressed until many lives had been lost on both sides

The inhabitants of Bareilly show much ingenuity in the manufacture of sword cutlery and various other objects such as fine carpeting, embroidery, jewellery, book binding and engraving The town is likewise noted for its brass manufactures and cabinet work many of the Company's stations in the upper provinces of India are supplied from Bareilly with various articles of household furniture, which are conveniently and beautifully made

Bareilly lies about half way between Lucknow and Delhi, and is distant from Agra 129 miles from Benares 345 miles from Calcutta 805 miles, from Delhi 142 miles, and from Poonah 910 miles, travelling distances

(Rennell's *Memoir of a Map of Hindustan* Mill's *History of British India* *Report of Committee of House of Commons on the Affairs of India*)

BAREITH or **BAYREUTH** [See BAIREUTH]

BARE LINE [See GEODESY]

BARETTI, JOSEPH, was born at Turin in 1716 His father intended him for the profession of the law but young Baretti feeling a dislike to it, left his father's house at the age of sixteen and went to Guastalla, where he had an uncle who placed him as a clerk in a commercial house Here he applied his leisure hours to the study of poetry and he took particular delight in the facetious style of composition in which Berni excelled Among the prose writers Benvenuto Cellini was his favourite After a few years he left the counting house and went to Milan and Venice where he became acquainted with Gasparo Gozzi Passeroni Parini, and other literary men of that age At Venice he was employed by a bookseller to translate Corneille's plays into Italian, and in the same city he entered into a literary controversy with a Doctor Schiavo, in which he displayed considerable violence On his return to Turin in 1747 he wrote a pamphlet against a professor of that university of the name of Bartoli, but the pamphlet was suppressed by the regent of the university, and Baretti being reprimanded, determined upon leaving Italy. He had early applied to the study of the English language and in 1751 he came to London, where he employed himself as a teacher of Italian After he had begun to reside in London, he translated into English the thirty-third Canto of Dante's *Inferno* which contains the episode of Ugolino and also Horace's *Carmen Sæculare* In 1757 he published the *Italian Library* which was an account of the lives and works of the most valuable authors of Italy, with a short history of the Italian language this work is valuable as a catalogue Having become known, he was appointed secretary for the foreign correspondence to the Royal Academy of Painting, Sculpture, and Architecture. In 1760 he set off on a tour with an English gentleman of the name of Southwell, went to Lisbon, and thence through Portugal Spain, and the south of France, to Italy. He gave an account of his journey in his *Lettere Famigliari*, published at Milan in 2 vols, 1762, which being written in a lively style, and relating to Spain and Portugal, two countries then little visited by travellers, attracted considerable attention He afterwards recast his work into English, and published it with considerable additions, under the title of *A Journey from London to Genoa*, 4 vols 12mo, Dublin, 1770

He spent several years after his return to Italy between Turin Milan, and Venice, in which last city he began a critical journal, called *Frusta Letteraria*, the Literary Scourge, which attracted much attention in Italy His object was to reclaim the generality of Italian writers of his time from their too great attention to words and mere rhetoric, and to direct their minds to logical and philosophical studies But he conducted his journal in a tone of bitterness, and became involved in personal quarrels with several writers of some note, and among others with Father Appiano Buonafede, a monk high in rank of the order of Celestines, and himself a man of considerable learning, who published a reply to Baretti, under the title of *Il bue pedagogo* The controversy between these two was carried on with a virulence of personal invective that reminds us of the scandalous quarrels of Valla and Poggio and was disgraceful to both the combatants Buonafede being a man of high connexions, Baretti thought it prudent to leave Venice and he accordingly repaired, in 1765 to Ancona where he went on publishing his journal affixing to it the false locality of *Trento* Some time afterwards he discontinued it, having published the 33rd Number and returned to England

In England he wrote *An Account of the Manners and Customs of Italy with Observations on the Mistakes of Travellers with regard to that Country* 2 vols 8vo London 1769 this work is a series of strictures on a *Tour in Italy* by a Dr Sharp who had judged the Italians very superficially and spoken of them very dogmatically Baretti took up the defence of his countrymen with his usual vivacity. His book is curious inasmuch as it gives a pretty fair account by an Italian of the manners and habits of his country in the last century long before the change that has taken place in consequence of the political vicissitudes of the last forty years He sold the manuscript according to his own statement for 200*l* He also wrote a dissertation in French *Sur Shakspeare et M de Voltaire* in which he refuted many errors which Voltaire had made in speaking of Shakspeare, and exposed his flippancy in judging of the language and literature of foreign nations such as the English and the Italian with which he was very superficially acquainted, and into the spirit of which he could not enter This little book is written with much critical talent and great independence of thought considering the age in which it appeared, and the overgrown reputation Voltaire then enjoyed

Baretti published an *Italian Grammar* and an *Italian and English Dictionary* in two vols 4to which superseded the former one of Altieri it has since gone through several editions and is still much in use He also compiled a *Spanish and English Dictionary* fol London 1778

One evening as Baretti was going to the Academy he found himself unexpectedly involved in a street brawl Being attacked by several men, he drew his penknife and wounded one of the assailants, who soon after died He was tried on the capital charge made his own defence and was acquitted by the jury Dr Johnson Mr Burke, and Mr Garrick, on the trial, gave favourable evidence as to his character

In 1782 Baretti obtained an increase of his salary as secretary to the Royal Academy, which added to the profits derived from his literary labours, enabled him to live in decent comfort till 1789, when he died in London in his 70th year He was acquainted with many of the English literary men of his time and especially with Dr Johnson, with whom he was in habits of friendship

Dr Johnson in his letters speaks very favourably of Baretti's book of travels, and states, on Baretti's own authority, that he was the first man that ever received money for copyright in Italy (Boswell's *Life of Samuel Johnson*, edited by J W Croker, see Index, Baretti, *passim* among other particulars concerning Baretti in this work, are copies of three very friendly letters from Johnson in 1761-2, after

Baretti had returned to Italy.) Among Baretti's later works the following deserves mention:—*An Introduction to the most useful European Languages, consisting of Select Passages from the most celebrated English, Italian, and Spanish Authors, with Translations as close as possible.* 8vo. London, 1772. The passages are all from prose writers, and each passage is translated into three languages in parallel columns, so as to give at one view the manner of expressing the same sentence in each of the four languages. Baretti aimed chiefly at exactness in rendering the meaning of the text. (Mazzuchelli, *Scrittori d'Italia;* Ugoni, *della Letteratura Italiana.*)

BARFLEUR, a small fishing town in France, in the peninsula of Cotentin, or Cotantin, now included in the department of Manche. As it is not on any of the great roads of France, we cannot give its exact distance from the capital, but it is probably about 15 miles N.N.E. of Valognes, which is 204 miles from Paris, on the road to Cherbourg.

The name of this town has been variously written, and it had another name also, that of Val de Cere, but Barfleur is the most common appellation. In former days it was a town of considerable importance, and had a good port. It was reduced to ashes, in 888, by the celebrated Northman Hastings, like all the other towns of Cotentin; but it rose again into importance, which it probably owed to its port, then accounted the best in Normandy. Barfleur was the common place of embarkation or landing for the kings of England of the Norman race, when they crossed the Channel, and it was here that William, son of Henry I., embarked previously to his shipwreck in 1120. With the rest of Normandy it passed into the hands of the kings of France; but in 1346 it was taken by Edward III. of England, who plundered the town and carried away the inhabitants. Barfleur never recovered from this blow. The port being neglected was filled with sand, and is now only sufficient for small boats which draw little water. The place has sunk into insignificance. The chief trade is in fresh and salt fish, and in the produce of the neighbouring lands, peas, beans, flax, linen yarn, hemp, and butter. The *Dictionnaire Universel de la France* (Paris, 1804) assigns to Barfleur a population of 893. We have no authority of later date. There existed before the Revolution a convent of Augustin monks, founded for that order, or given to them by Philip IV. (*le Bel*) of France, in 1286.

The north-eastern extremity of the peninsula of Cotentin bears the name of Cape Barfleur. It is in 49° 43′ N. lat., 1° 16′ W. long. All this coast is remarkable for the excellence of its fish. (*Dictionnaire Universel de la France;* Expilly.)

BARGA'GLI, SCIPIO'NE, was born at Siena, in Tuscany, of a patrician family, about the middle of the sixteenth century. He became distinguished as an elegant writer, and was a member of the academy of the *Intronati* of Siena, as well as of the Venetian academy which was instituted at Venice in 1593. Bargagli's principal works are, 1. *I Trattenimenti*, 4to. Venice, 1587, which by some is called Bargagli's novels. In imitation of Boccaccio's *Decamerone*, the author supposes four ladies and five young men to meet at carnival time in 1555, at Siena, while that city was suffering all the privations and dangers of a siege, and to entertain each other by proposing and answering questions concerning love-matters, after which each of the party tells a tale. Bargagli's tales are neither loose in their meaning or images, nor indecent in their language. The work begins with a powerful description of the horrors which the people of Siena had to encounter in 1554-5, while besieged by the united forces of Charles V. and of Cosmo, Grand Duke of Florence, previous to the final extinction of their republic. It is a faithful historical account, and is calculated to excite the most intense interest. 2. *Dell' Imprese*, 4to. Venice, 1594. This is a work of considerable erudition concerning the origin and symbolic language of devices and mottoes which were assumed in the ages of chivalry by knights at tournaments or on setting off on some expedition, many of which became perpetuated in the escutcheons and armorial bearings of noble families, while others were assumed by academies and other societies. This book is considered as one of the best on the subject. Bargagli dedicated it to the Emperor Rudolf II., by whom he was made Count Palatine, with the privilege of adding the double-headed eagle to his coat of arms. The third work of Bargagli is *Il Turamino ovvero del Parlare e dello Scriver Sanese*, 4to. Siena, 1602, a dialogue on the various dialects of Tuscany, and especially on that of Siena, explaining the principal differences of spelling and pronunciation between that and the Florentine dialect, as well as the difference in certain words used by each to signify the same objects. The *Turamino* gives a list of old Sienese writers, especially poets, beginning from the thirteenth century. It is a work of some interest to philologists and Italian scholars. Bargagli wrote other minor works both in prose and verse. He died in 1612.

His brother Girolamo, who was a professor of law, and afterwards a counsellor of some note in his native city, was likewise an author. He wrote a book called *Dialogo dei Giuochi che nelle Vegghie Sanesi si usano di fare*, 8vo. Venice, 1575, which is an explanation of the humorous social games which used to be and are still occasionally played in Italy among friendly parties assembled to pass together the winter evenings, and in which there is often a considerable display of wit and ingenuity, of quickness of repartee, and shrewdness in guessing. The author justly condemns those licentious equivocations or indecent allusions which are at times resorted to in these games. This book has been by some erroneously attributed to Scipione Bargagli. (Mazzuchelli, *Scrittori d'Italia.*)

BARGAIN. This word is immediately derived into the English language from the French *Barguigner;* and perhaps ultimately from the Italian *Bargagnare*. Its etymology is quite uncertain, but it appears to have been frequently used in the middle ages to signify the arrangement of the terms of a contract of purchase. (See Ducange, *Glossar.* ad verbum Barcaniare.) In this sense it is commonly used in English law; and when a bargain and sale of goods is mentioned, the bargain denotes the arrangement of the terms upon which one sells and another buys; and the sale expresses the completion of the contract so as to pass the property from the seller to the buyer. In such cases the seller is called the bargainor, and the buyer is termed the bargainee. The two parts of the transaction taken together constitute the whole contract of buying and selling personal goods so as effectually to change the property. In order, however, to give validity to this contract, it is essential that there should be a consideration given or promised by the bargainee to the bargainor. Thus if a man verbally agrees to sell me a horse, and I neither pay him nor promise him any thing for it, this is what the English law, following the civil law, calls *nudum pactum*, a naked bargain, and not a sale, and, being wholly void, will not pass the property in the horse to me.

The term Bargain and Sale is now much more generally used in a more limited sense to denote a kind of conveyance of real property, which derives its effect from the statute 27 H. VIII. c. 10, commonly called the Statute of Uses. For nearly two centuries before that statute, it was the custom throughout England to convey lands to uses: that is to say, the legal possession of them was vested in one person, while the use or beneficial interest was enjoyed by another, who was called the *cestuique use*. This practice is said to have been first introduced by the monastic societies, for the purpose of evading the statutes of mortmain, which, while they prohibited a direct conveyance to those corporations, did not in terms extend to alienations to third persons for the use or benefit of religious houses. This defect was afterwards remedied by the statute 15 Ric. II. c. 5, which rendered uses subject to the penalties imposed by the statutes of mortmain. But the practice of conveying land to uses was found to be attended with so much convenience, that it still continued with respect to estates of private individuals. The courts of common law, indeed, refused to acknowledge any other title than that of the person who was actually in possession of the land. But the Court of Chancery, upon the ground that the legal tenants were bound in conscience to perform the trusts for which the land was vested in them, used to interfere to compel them to account for the profits of the land to the *cestuique use*, and to dispose of it according to his directions.

This was the origin of the jurisdiction of Courts of Equity over trusts, which has since assumed so extensive and complicated a shape. The interest in the use, being a creation of Courts of Equity, was of course subject to the modifications imposed by those courts. Hence, they permitted uses to pass by the will of *cestuique use* at a time when land itself was not devisable except by particular custom. Again, uses were not subject to aids, reliefs, wardship, mar-

riage, escheat, or any other feudal incident, nor liable for the debts of *cestuique use*.

The use being, in contemplation of equity, thus separated from the possession of the land, it followed that the alienation of the one might be made without parting with the other. Thus, if a person, possessed of an estate in fee-simple, made a bargain with another that the estate should be his, but retained possession of the property, the Court of Chancery (provided the bargain was grounded upon a sufficient consideration) looked upon the bargainer as holding the estate to the use of the person from whom the consideration proceeded, and who was, according to the dictates of good conscience, to be treated as the real owner of the estate. Equity, however, following the rule of the civil law, not to enforce a *nudum pactum*, refused to compel the performance of any agreements except such as were founded either on *good* or *valuable* consideration. These two classes of contracts gave rise to two new kinds of conveyance, which, though disregarded by the courts of common law, became operative in equity. The first, namely a conveyance on a *good* consideration, was where the owner of the estate, in consideration of an intended marriage, or of the love which he bore his actual wife, child, or other blood relation, agreed by deed to hold the estate for the use of such wife, child, or blood relation. This was called a covenant to stand seised, from the word 'seisin,' which in English law signifies possession of a freehold estate. The other was where the contract was founded on a *valuable* consideration; namely, one consisting of money or money's worth (as rent, or services incident to feudal tenure), and was called a bargain and sale. It was originally a mere contract for sale; but in process of time it became a mode of settlement of land, in which case the courts of equity did not inquire into the *amount* of the consideration, provided it were *valuable* according to the technical meaning of the term.

In process of time, the inconvenience of separating the real from the ostensible ownership of the land was found to counterbalance any advantages that might have been accidentally derived from the system. The departure from the principles of the common law of England, in permitting secret alienations to have the same effect as the open and notorious conveyances of former times, opened a wide door to fraud. The feudal lords, in particular, suffered by the system of uses to such an extent, that several legislative enactments were from time to time introduced in order to remedy the evil. [See USES.] At length the legislature, in the 27th year of the reign of Hen. VIII., by a bold enactment abolished the distinction between ownership of the land and ownership of the use, by transferring uses into possession, that is to say, by giving to the person who had formerly only an interest in the use, a perfect, indefeasible, legal estate in the land. So that where a person before the statute (having a freehold estate in lands) had agreed, for good or valuable consideration, that the use of such lands should belong to another, the statute divested the bargainer of all interest in the land, and conferred upon the person with whom the contract was made (or, in legal language, the bargainee), the same estate in the land that he formerly had in the use. But it is to be observed, that if the bargainer had an estate less than freehold in the land (as an estate for a term of years), the statute, which provides only for cases where persons are *seised* to the use of others, was held not to apply. Therefore, in that case the bargainee was left to his remedy in equity as before. But in conveyances of freehold estates, the statute gives such a title to the bargainee as he can enforce in a court of law without having recurrence to equity. The operation of the conveyance has been well described to be of such a nature, that the bargain first vests the use, and then the statute vests the possession in the bargainee. The words of the statute extend to every species of real property (except copyhold estates), whether corporeal or incorporeal, whether in possession, reversion, or remainder. Therefore, all such property (if actually in existence at the time of the creation of the use) may be the subject of conveyance by bargain and sale. (Sanders *On Uses and Trusts*, vol. i. p. 107; and vol. ii. p. 51.)

The legislature having thus given a legal effect to this equitable mode of transfer of property, proceeded in the same session to provide against its being turned into an instrument of fraud. The secret nature of uses had been mentioned in the preamble of 27 Hen. VIII. c. 10, as one of the principal reasons for their abolition. To prevent the same objection from arising to the conveyance by bargain and sale under the statute, the statute 27 Hen. VIII. c. 16, provided that no bargain and sale should operate to pass an estate of freehold, unless made by writing indented, sealed, and enrolled in one of the king's courts of record at Westminster, or with the custos rotulorum, and two justices of the peace, and the clerk of the peace of the county or counties where the lands bargained and sold lay, or two of them at the least, whereof the clerk of the peace was to be one: the enrolment to be made within six months after the date of the writing. The act contains an exception of lands lying within cities, boroughs, or towns corporate, where the mayors or other officers have authority, or have lawfully used to enrol any evidences, deeds, or other writings. A bargain and sale, therefore, of such lands, operates to all intents and purposes, from the date of the conveyance. The writing required by this statute must be a deed; *i.e.*, must be delivered as well as sealed, as the requisition that it be indented implies; for the indented edge of the parchment is a symbol of a duplicate of the writing being in the hands of another contracting party. (Burton *on Real Property*, p. 140; and see DEED, INDENTURE.)

The enrolment of a bargain and sale is a copy of the deed upon parchment preserved in the records of the court: and as the statute requires this to be made within six months, without saying *calendar* months, it is understood, according to a well known rule of law, to mean lunar months, consisting each of twenty-eight days. But a recent statute for the abolition of fines and recoveries (3 and 4 Wm. IV. cap. 74) provides (s. 41) that bargains and sales made in pursuance of that act shall be good if enrolled within six *calendar* months. The deed may be enrolled upon proof of its due execution, without the concurrence of the bargainer.

As the statute of enrolments obstructs the operation of the conveyance until it be enrolled, frequent questions have arisen in our courts as to the legal rights of the bargainee in the interval between the execution of the deed and the enrolment. For most purposes the enrolment has a retrospective relation to the delivery of the deed, so as to give it the same effect as if the enrolment were immediate. But it has been held that, although the bargainee of a reversion is entitled to the rent incurred between the delivery and the enrolment, yet if the tenant pay the rent to the bargainer, the payment is lawful, and the bargainer is not compellable at law to account for it. Again, it seems that, if a bargainee before enrolment convey the estate by bargain and sale to another person, and then enrol the first deed, the second deed is void, though it be afterwards enrolled. So a lease made by a bargainee before enrolment is not valid. Upon this part of the subject see Sanders on *Uses and Trusts*, vol. ii. p. 55. The 74th section of the 3rd and 4th Wm. IV. cap. 74, provides that every deed to be enrolled under that act shall take effect *as if enrolment had not been required*, but shall be void against a purchaser for valuable consideration claiming under a deed subsequent in date but enrolled before the other.

Enrolments of bargains and sales of freehold land being considered as deeds of record have been deemed so far worthy to be assimilated in their nature to records as to render a copy of an enrolment admissible, in the first instance, as evidence in a court of law, without any actual proof of its execution. This cannot be the case with any other kind of deed, except where the original is in the possession of the adverse party, who refuses, after notice given, to produce it. But statute 10 Anne, c. 18, s. 3, in conformity (as it is said) with former usage, has given to enrolments of deeds of bargain and sale the same privilege with other records, by making copies of them of the same force, when produced in evidence, as the originals. Such copies must be examined with the enrolments and signed by the proper officer (whence they are called office copies), and must be proved upon oath to be true copies so examined and signed.

Some time after the passing of the Statute of Enrolments a method of evading the object of it was discovered. The statute, in terms, only extends to conveyances of estates of freehold or inheritance. Therefore if a person, being himself possessed of an estate of freehold (for otherwise, as we have mentioned above, the Statute of Uses itself did not apply), carved an interest for a term of years out of such estate by deed of bargain and sale, such deed did not require enrolment. And the Statute of Uses conferring upon

such bargainee for years the legal possession of the land, he was in a condition to receive from the bargainer a release of the freehold reversion: for a release is a relinquishment of right, and by the rules of the common law can only be made to a person who has already some interest in the land, which enables him to avail himself of the right relinquished. [See RELEASE, REVERSION.]

This was the origin of the conveyance by lease and release, which, from its convenience in effecting a transfer of the legal freehold by the rules of the common law, without any additional ceremonies, has, in modern times, nearly superseded every other mode of alienation of freehold property. The modern conveyance by lease and release is therefore a transaction compounded of a bargain and sale and a release at common law, in which two deeds are required. The first, which is generally a lease by bargain and sale for one year for a nominal consideration, by force of the Statute of Uses, gives the actual legal possession of the land, without a formal entry, to the bargainee. The second, which generally bears date the day after the date of the lease, is a deed of release of the freehold and inheritance of the land to the party who has already obtained possession by virtue of the lease for a year. (For a further account of this mode of conveyance, see LEASE and RELEASE.)

It is to be observed, however, that as before the Statute of Uses it was a rule of law that a corporation could not be seised to a use, so since that statute no corporation (even though otherwise not disabled in law from alienation) can convey by bargain and sale. Therefore such a corporation, in order to convey by lease and release, must make a lease operating at the common law: in which case an actual entry upon the land by the lessee and payment of rent must be made before the lessee has such a possession as to enable him to take a release of the reversion.

The operative words of transfer commonly used in a deed of bargain and sale are 'bargain and sell;' but it seems that if a man, for a pecuniary consideration, by deed indented, covenant to stand seised to the use of another, or give and enfeoff, or alien, grant, and demise to him, such deed, if properly enrolled, will operate as a bargain and sale. (Sanders, *Uses and Trusts*, vol. ii. p. 49.)

A bargain and sale, as well as a lease and release, is said to be a harmless conveyance, *i. e.* if a person by either of these modes of conveyance professes to grant a larger interest than he actually possesses in the land (as where a tenant for life attempts to convey the fee), the conveyance operates only to pass such interest as the grantor could lawfully convey. But if such tenant for life were to attempt an alienation by a more violent mode of conveyance (as by feoffment), a forfeiture of the life estate would ensue, and the person next in remainder or reversion would be entitled to take advantage of such forfeiture by an immediate entry upon the lands.

By the Stamp Act (55 Geo. III. c. 184), in order that a bargain and sale, as consisting of one deed, may not pay a lower duty than a conveyance by lease and release, which consists of two, the additional duty which, if the conveyance had been by lease and release, would have been incurred by the lease, is accumulated upon the deed of bargain and sale. The Statutes of Uses and Enrolments are both comprised in the Irish Act (10 Car. I. sess. 2. c. 1), but there is no Irish statute relating to copies of enrolments.

BARGE (Zoology), the French name for some of the Godwits, genus *Limosa* of Brisson. [See GODWIT.]

BARGE-COURSE, a term applied to that part of the tiling of a roof which projects over the gable end of a building: the under part of the barge-course, immediately over the external wall of the gable, is stuccoed. To protect this stucco from the weather, two boards, called barge-boards, following the inclination of the roof, are often attached to the gables of old English houses, fixed near the extremity of the barge-course, and carved in the richest manner in the Gothic style. In small modern buildings erected in the form of cottages the barge-board is sometimes used, but it is generally meagre in appearance, and does not usually possess the utility of the old barge-board. These barge-boards may be considered as one of the peculiar characteristics of domestic Gothic architecture. Numerous fine examples of these barge-boards may be seen at Coventry. (See Pugin's *Ornamental Gables*, in which the rich designs of many of these carved boards are admirably drawn.)

The word Barge is possibly a corruption of *bash*, which is used provincially to express beating in, beating on, and beating down. The barge-board is placed at the gable ends of buildings to protect the barge-course from the rain, which would otherwise beat in upon it. The *barge*-course may therefore possibly be a corruption of *bash*-board. Bash may also be a corruption from the Saxon beyceaδan, to beshade, to cover.

BA'RI, TERRA DI, one of the fifteen provinces of the continental part of the kingdom of the Two Sicilies. It extends about eighty miles along the coast of the Adriatic from the river Ofanto, the antient Aufidus, which divides it from the province of Capitanata, to within five miles north-west of Ostuni, which is the first town of the Terra d'Otranto on that side. Inland the province of Bari extends about thirty-five miles as far as the range of high hills, which, detaching itself from the central ridge of the Apennines, near Venosa, runs in an easterly direction towards the Adriatic, dividing the waters that flow into that sea from those which fall into the Gulf of Taranto. This range divides the province of Bari from that of Basilicata. Altamura, the last town of Bari on that side, is at the foot of the range. It is one of the most populous provinces of the kingdom; and that strip of it which extends along the sea-coast, and about ten miles inland, is one of the most fertile and best-cultivated countries in Italy. It is studded with a number of towns at a few miles distance from each other, such as Barletta, Trani, Bisceglia, Molfetta, Giovenazzo, Bari, Mola, Polignano, Monopoli, Fasano; and inland, but still within a few miles of the coast, Andria, Ruvo, Noja, Bitonto, Bitetto, Conversano, &c. Several of these towns have from 12,000 to 18,000 inhabitants, and the rest from 4000 to 8000: the whole population of the province is about 420,000. The interior of the country is much less populous than the maritime districts, vast tracts of it being left for pasture or being overgrown with woods. This part is covered with calcareous hills; the valleys are susceptible of good cultivation. Both the Terra di Bari and the Terra d'Otranto are called by the natives *Puglia pietrosa*, 'stony Puglia,' in opposition to Capitanata, which is called *Puglia piana*, 'flat Puglia.' The province of Bari has no rivers except the Ofanto, which flows along its north western border; but abundant springs are found at little depth underground, and supply water for the purpose of irrigation. The principal productions of the country are oil, corn, wine, silk, soda, and an abundance of fruit. Oil and corn are the chief articles of export. The towns on the coast, especially Barletta and Bari, carry on a considerable trade with Trieste, Venice, the coast of Dalmatia, the Ionian Islands, &c. There are some manufactures of linen at Molfetta, and ship-building is carried on in all the maritime towns. The harbours are only fit for very small vessels. The climate, though very hot, is generally healthy, expect in some spots where the water from the heavy rains is allowed to accumulate and stagnate. A good carriage-road runs along the coast from Barletta to Mola, a distance of forty miles, and this tract of country, called *La Marina di Bari*, is much boasted of by the inhabitants for its fertile appearance and high state of cultivation. Another and a more inland line of road runs parallel to the first, passing through Andria, Ruvo, Bitonto, &c. The province of Bari is administered by an intendente, or civil governor, who resides at Bari, but the civil and criminal courts of judicature are established at Trani. The province is divided into three districts—Bari, Barletta, and Altamura; and the whole is subdivided into thirty-seven *giudicatore inferiori*, having each a magistrate or inferior judge.

BARI, the chief town of the province, is situated on a slip of land which projects into the sea, and is 140 miles E. by N. of Naples, in 41° 8′ N. lat., and 16° 55′ E. long. It was called Barium (Βάριον, Strabo) under the Romans, and was one of the towns of Apulia. At one epoch it was probably a Greek colony, though nothing appears to be known as to its origin.





Greek coin of Barium.

[British Museum. Copper. Actual size. Weight 81 grains.]

It is mentioned by Horace in his journey to Brundusium, as

a place abounding in fish. After the fall of the Western Empire, Bari was for a time under the Greek emperors, and afterwards under the Langobard Dukes of Benevento. In the ninth century it was taken and plundered by the Saracens, who were called into Apulia by Ratchis, Duke of Benevento, to assist him against the rival Count of Salerno. The Emperor Louis took it from the Saracens in 870, but a few years after the Greeks obtained possession of it, and Bari became the residence of the Greek Catapan or governor of Apulia. In 1070 it was taken by the Normans after a long siege, was re-taken by the Emperor Lotharius in 1137, and again conquered a few years after by Roger, King of Sicily. The most remarkable building in Bari is the church and priory of St. Nicholas, which were built in 1098, and richly endowed by Roger, Duke of Apulia. The church is a large and venerable Gothic structure. The arches which divide the aisles are supported by double pillars of granite. Among the monuments is a splendid mausoleum of Bona Sforza, Dowager Queen of Poland and Duchess of Bari, who died here in 1557. There is also the tomb of Roberto di Bari, prothonotary of the kingdom of Sicily, who passed the sentence of death on the unfortunate Corradino. The Castle of Bari is a large and old structure. The town itself is surrounded by walls and is old looking, and the streets are narrow and winding; like all the rest of Apulian towns, it has neither sewers nor conduits. It contains 19,000 inhabitants, and has an appearance of bustle and opulence. A manufacture peculiar to this place is that of the *acqua stomatica*, a sort of fine cordial made of aromatic herbs and spices, which is generally drunk after coffee, and is much in request all over the kingdom. The monks have been long in the habit of preparing it. The port of Bari is formed by two moles which give it security against the winds from the sea; and though it is nearly filled up with sand, it is still the most frequented of any in the province next to that of Barletta. Bari has a lyceum or royal college, one of the five that exist in the continental part of the kingdom, and which confer masters' and bachelors' degrees or licences as they are called, but not the doctorat laurea, which is a privilege of the University of Naples only. A certain number of students are boarded and lodged for about eight ducats a month (1*l.* 7*s.* sterling), instruction included. (Keppel Craven's *Tour through the Provinces of the Kingdom of Naples*; Serristori, *Saggio Statistico dell' Italia*, &c.)

BARIDIUS, in entomology, a genus of the order *Coleoptera*, and family *Curculionidæ*. These are cylindrical little beetles which feed upon aquatic plants. They are generally of a black colour, and more or less covered with a whitish down.

BARILLA (Spanish, *Barilla*; German, *Soda*, *Barilla*; French, *Soude*, *Barille*; Dutch, *Soda*; Italian, *Barriglia*; Portuguese, *Solda*, *Barrilha*; Russian, *Socianka*). Barilla is the commercial name given to the impure carbonate of soda imported into this country, principally from Spain, the Canary Islands, and Sicily. The best is brought from Alicante, in the neighbourhood of which place it is prepared from two plants, the *salsola sativa*, or barilla, whence the name of the preparation, and the *salicr*. These plants are very extensively cultivated in Valencia and Murcia, and the produce is annually exported from Alicante to the amount of 90,000 cwt. By far the largest proportion of this quantity finds a market in this kingdom. The plants are raised from seed which is sown at the close of the year, and they are usually in a fit state to be gathered in the month of September following. They are then plucked up by the roots, and after they have been allowed to become heated by being thrown together in heaps, are dried in the sun by the same method as is used in England for making meadow-hay. In October the plants are burned. For this purpose, hemispherical holes are made in the earth capable of containing about a ton and a-half of soda; two iron bars are laid across each of these cavities, and the dried plants, mixed with straw and reeds, are placed upon these supports. The whole is then set on fire, when the soda which the plants contain is fused and flows into the cavity beneath in the form of a red-hot fluid. This burning is continued by the constant heaping on of plants until the pit is filled, when the alkali is covered over with earth and left to cool gradually, during ten or twelve days. At the end of that time the mass is found to be of a hard and spongy consistence; and this, when broken into fragments, is ready for shipment. Barilla of the best quality is of a bluish-grey colour; that which is made from other plants, and which is inferior, is of a colour approaching to black, and of greater specific gravity than barilla made from the plants above-named.

The commercial value of barilla, as applicable to the arts, depends upon its purity; that is, upon the quantity of alkali which is contained in a given weight of the substance. This proportion is ascertainable by means of sulphuric acid, the strength of which may be known by its specific gravity. It has been found that 49 parts by weight of this acid, of the specific gravity 1·8485, will neutralize 54 parts by weight of pure carbonate of soda. The barilla of commerce is usually found to contain from 16 to 24 per cent. of its weight of pure carbonate of soda: occasionally some is met with which contains as much as 30 per cent. In its crude state the alkali of barilla is combined with carbonic acid. The substance likewise contains common salt (chloride of sodium), besides several other foreign ingredients.

The largest consumption of barilla takes place in the making of soap and glass. When employed for soap-making, the alkali is separated by solution in water, and then is rendered caustic by the addition of lime, which removes the carbonic acid. This part of the process is necessary, because alkalies will not combine with oleaginous matter to form soap, unless they are in a state of causticity. For making glass, the alkali which barilla contains is used in the form of a carbonate; the carbonic acid is driven off by heat during the progress of the manufacture. It is only in making some of the commoner kinds of glass that barilla is used in its crude form. For the composition of plate-glass, soda in a state of considerable purity is required; and, consequently, when barilla is employed, all the insoluble impurities and foreign substances are first separated by careful lixiviation. For common green glass, kelp is generally used, which is inferior to barilla, as it contains a larger proportion of neutral salts and carbonaceous matter, and rarely contains beyond 6 or 8 per cent. of its weight of pure alkali.

The consumption of barilla in the United Kingdom, on an average of the last five years, has been 2[illegible]2,029 cwt. annually. Until 1822, it was subject to a duty on importation of 11*s.* 1*d.* per cwt., which rate was then reduced to 8*s.* 6*d.*; in 1831 it was further reduced to 2*s.* per cwt.; and at this rate it now stands in our tariff. The quantities imported, during the years 1832 and 1833, were brought from the following countries:—

	1832.	1833.
Spain and the Balearic Islands	132,567 cwt.	74,537 cwt.
Canary Islands .	34,176	111,748
Italy and the Italian Islands .	19,590	24,783
Other places	1,905	3,422
Total	188,538 cwt.	214,490 cwt.

(Parke's *Chemical Essays*; *Library of Entertaining Knowledge—Vegetable Substances*, vol. iii.; *Treatise on the Manufacture of Glass*, in Lardner's *Cyclopædia*; *Government Statistical Tables*.)

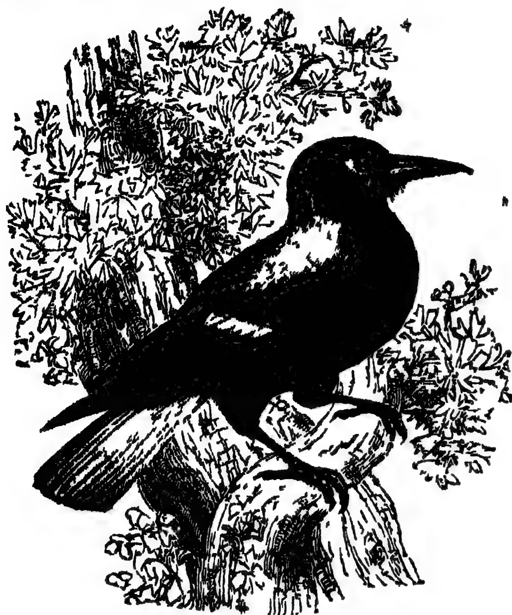
BARIS, in entomology, a genus of the order *Coleoptera*, and family *Curculionidæ*. The species of this genus feed upon the dead parts of trees. One of the species, *Baris lignarius*, feeds upon the elm tree both in the larva state and that of the perfect insect. When the little beetle is about to lay its eggs, it generally selects the interior of a hollow tree for that purpose, and bores a hole with its short snout in the dead wood, where it is still tolerably sound; this being accomplished, it enters the hole, hinder part first, deposits its eggs, and dies: the hole being only just the size of its cylindrical body, it thus forms a protection for its young, by stopping the hole so that no other insect can enter. It is not known that it ever attacks any other wood but that part where the sap has ceased to flow, and consequently the tree can receive no injury from this little weevil.

BARITA (Zoology), the name given by Cuvier to a genus of birds which he places among the shrikes, but which Vigors considers to belong to the family of crows.

The following are the characters of *Barita*: bill hard, long, and strong, convex above, slightly hooked at the extremity, near which both mandibles are notched: nostrils lateral, and longitudinal near the base; legs stout; outer toe joined to the middle one as far as the first joint; inner toe entirely free; hind toe elongated; claws strong and curved.

Barita Tibicen, the piping crow, common in New South

Wales, where Quoy and Gaimard, the able naturalists attached to Freycinet's expedition, saw numbers of them on the Blue Mountains living gregariously in small troops, will serve as an illustration of the genus.



[Barita Tibicen.]

The bird brought home by Freycinet reached France alive; and by its good-natured and amusing manners became a great favourite while on ship-board. It was a skilful mimic, and clucked and cackled like a hen, but its imitation of a young cock was complete. It had been trained to whistle airs at Port Jackson, and some of these it appeared to forget, but recollected them on being prompted.

There is a specimen in the Zoological Gardens in the Regent's Park which, when excited, whistles loud and clear the first notes of 'Over the water to Charley.'

Caley, on the authority of the natives, says, that the bird builds in trees, the nest consisting of sticks lined with grass, and generally containing three young ones. It is said to make a loud whistling noise, perched high in the trees, in the morning, and not to be migratory. The piping crow is rather less than the common crow. The neck behind, and a patch extending over the shoulders and back, together with the bases of the wing coverts, are white, tinged with bluish. There is some pure white about the base of the tail and tail coverts, the rest of the plumage is deep black. The legs and claws are dusky, and the bill is bluish at the base and black at the extremity. Vieillot gives the name of *Cracticus* to this genus.

BA'RIUM, a peculiar metal, the basis of the alkaline oxide or earth barytes. Davy first gained indications of the decomposition of barytes in the end of October, 1807, and obtained an alloy of it with iron in March, 1808. The process of electrifying mercury, in contact with the earth, was pointed out to him by MM. Berzelius and Pontin, in May, 1808, and in the beginning of June, in the same year, he obtained the metal. To obtain barium a quantity of the mineral substance called carbonate of barytes is made into a paste with water, and placed on a plate of platina; a cavity is made in the paste to receive a globule of mercury; the mercury is rendered negative, the platina positive, by means of a Voltaic battery containing about one hundred double plates. In a short time the barytes of the carbonate is decomposed, and an amalgam of mercury and barium formed. This amalgam must be heated in a small bent glass tube, which contains no lead, and filled with hydrogen gas, or the vapour of naphtha; the mercury being volatilized, the barium remains. Barium may also be procured, without the aid of electricity, by passing a current of the vapour of potassium over red-hot barytes in an iron tube. By this a mixture of barium and oxide of potassium is obtained; from this the metal is to be extracted by amalgamation with mercury, and the amalgam is to be decomposed by heat in the mode already described.

The properties of barium are, that it resembles silver in appearance; it is much heavier than water, for it sinks even in sulphuric acid, though surrounded by bubbles of gas; it oxidizes readily in water by decomposing it, with the evolution of hydrogen gas; a solution of barytes is thus obtained. By exposure to the air it is slightly covered with a crust of barytes; it fuses before it becomes red hot, and at this temperature it acts upon glass, without being volatilized: when exposed to the air, and moderately heated, it burns with a deep red light. It may be flattened a little, so that it is to a certain extent a malleable metal. Barium has, however, as yet been obtained only in small quantities, and consequently its properties are but imperfectly known.

Oxygen and barium combine to form two compounds, viz., the protoxide usually called *barytes* or *baryta*, and the *peroxide of barium*. The first of these oxides (barytes) occurs largely in nature, and was discovered in the year 1774 by Scheele; its name is derived from βαρυς (*barys*), heavy. Barytes is met with combined with sulphuric acid, forming *heavy spar* or *cawk*, termed chemically sulphate of barytes, and with carbonic acid, constituting the mineral termed *witherite*, or carbonate of barytes; it may be procured by decomposing either of these native compounds. The simplest mode, when it is wanted free from water, is to convert the carbonate into nitrate of barytes, and this when strongly heated in an earthen crucible is decomposed, and the nitric acid being expelled, the barytes remaining has the following properties:—It is of greyish white colour; when moistened with water it becomes very hot, and in a short time falls into a fine white powder; if more water is added, it becomes a crystalline and very hard mass. The specific gravity of barytes is about 4·0; it is extremely poisonous, has an acrid, alkaline, caustic taste, and requires a high temperature to fuse it.

Barytes, or the protoxide of barium, is composed of, according to . . . Berzelius. Thomson.

	Berzelius.	Thomson.
1 equivalent oxygen . .	8	8
1 do. barium	68·66	68
equivalent .	76·66	76

Barytes and water combine and form at least two compounds: the first, hydrate, appears to be procured when a small quantity of water is poured upon barytes, and during their action, as has been already stated, much heat is evolved and the barytes becomes a white powder; this probably contains one equivalent of water. It is fusible at a red heat, but does not part with its water even when heated to whiteness.

According to Davy, 20 parts of water at 60° dissolve one part of barytes: the solution is called *barytes water*, and is frequently used as a chemical re-agent, especially in determining the proportion of carbonic acid in gaseous mixtures; with this barytes forms an insoluble carbonate, and both barytes and barytes water speedily acquire carbonic acid by exposure to the air. Barytes water acts strongly as an alkali, converting vegetable yellows to brown, and reds to green, and saturating acids. Water at 212° dissolves, by Davy's experiments, half its weight of barytes, of which a considerable portion separates in the state of crystals as the solution cools; these crystals contain ten equivalents of water.

Peroxide of barium is prepared by heating barytes to low redness in a platina crucible, gradually adding to it about one fourth of its weight of chlorate of potash; this yields oxygen to the barytes, or protoxide of barium, which thus becomes peroxide, but mixed with chloride of potassium, which may be dissolved by cold water, while the peroxide of barium remains undissolved, combined with water: it may also be prepared by passing oxygen gas over barytes heated to redness. It is composed of two equivalents of oxygen and one equivalent of barium. It is decomposed by acids, and is used only in preparing the peroxide of hydrogen.

Neither azote nor hydrogen unites with barium.

Chlorine and barium combine to form one chloride, consisting of, according to . . Berzelius. Thomson.

	Berzelius.	Thomson.
1 equivalent of chlorine .	35·47	36
1 do. barium .	68·66	68
equivalent	104·13	104

The best mode of preparing chloride of barium is to dissolve carbonate of barytes in muriatic acid, evaporate the solution so as to obtain crystals, and then to decompose them at a

red heat; by this the oxygen of the barytes and the hydrogen of the muriatic acid are expelled, and chloride of barium remains, in the state of a colourless dense salt, which is soluble in water, but scarcely, if at all, in alcohol. When the aqueous solution is evaporated, crystals are obtained, which contain water, and which are probably muriate of barytes. Chloride of barium is much used in solution as a chemical re-agent.

Sulphur and barium combine, and probably in several proportions, but these sulphurets have not been sufficiently examined. According to Berzelius they may be obtained in several modes: first, by heating barytes in a glass tube to redness, and passing over it a current of sulphuretted hydrogen gas, until vapour of water ceases to be formed; secondly, by heating together to redness a mixture of barytes and sulphur; thirdly, by heating together finely-powdered sulphate of barytes and powdered charcoal in a covered crucible; in this case the charcoal takes oxygen both from the sulphuric acid and the barytes, and sulphuret of barium remains, which dissolves readily in boiling water, and the solution on cooling deposits colourless transparent crystals; these crystals are sulphuret of barium containing water. This last is the best and easiest method of procuring sulphuret of barium; and it is sometimes employed for the purpose of forming the salts of barytes, as the muriate, nitrate, &c. The acids precipitate sulphur, and combine with the barium, converted to barytes by decomposing water, and combining with its oxygen; sulphuretted hydrogen gas is evolved during the action of the acids. Sulphuret of barium is probably composed of one equivalent of each of its elements.

Phosphorus and barium combine to form the phosphuret, by heating barytes to redness in a glass matrass with a long neck, and throwing phosphorus upon it. There are formed both phosphate of barytes and phosphuret of barium; the mass fuses, and on cooling has a brown colour and a metallic lustre: when too strongly heated the phosphuret of barium is decomposed, phosphorus is volatilized, and barytes remains. Phosphuret of barium decomposes in water: phosphuretted hydrogen gas is evolved, and hypophosphite of barytes remains in solution.

Iodine and barium unite and form the iodide of this metal; it may be prepared by acting upon barytes with hydriodic acid, and evaporating the solution obtained: it is very soluble in water, and crystallizes in acicular crystals, which deliquesce slightly by exposure to the air.

Bromine and barium, when combined, form the bromide: it may be obtained by boiling excess of moist carbonate of barytes in a solution of protobromide of iron; the filtered solution is to be evaporated to dryness and the residue made red hot; by dissolving this in water and by careful evaporation, colourless rhombic crystals are obtained, which are soluble in alcohol.

Fluorine and barium may be made to combine by digesting fresh precipitated and moist carbonate of barytes in fluoric acid; the carbonate is decomposed, and the fluoride of barium is formed, and separates in the state of a white powder. This may be heated to redness without decomposing, and is slightly soluble in water: the solution by evaporation yields crystalline grains, which are readily dissolved by muriatic and nitric acids.

Having described the principal binary compounds of barium, we proceed to notice the more useful of the numerous salts formed by combining the protoxide of barium (barytes) with different acids. The following are the only barytic salts which are extensively employed.

Acetate of barytes. This salt may be prepared by dissolving either barytes or the carbonate in acetic acid, or decomposing the solution of sulphuret of barium with it. By evaporation crystals of acetate of barytes are obtained in slender prisms, resembling those of acetate of lead; these crystals effloresce by exposure to the air; they dissolve in 1·75 part of cold water, and in 1·03 of boiling water; 100 parts of cold alcohol dissolve one part of these crystals, and when boiling, one part and a half. This salt is composed very nearly of

1 equivalent of acetic acid			51
1	do.	barytes	76
3	do.	water	27
			154

The taste of this salt is saline and bitter: it is decomposed by the fixed alkalies and their carbonates, and by carbonate of ammonia; it is also decomposed by sulphuric acid, and the sulphates which precipitate sulphate of barytes.

According to Mitscherlich, when this salt crystallizes at the temperature of 58° Fahrenheit, it contains only 6·6 per cent. of water; but when below this temperature it contains, as above stated, about 17·5 per cent. of water of crystallization.

Carbonate of barytes. This substance occurs to a considerable extent as a mineral product, and is by mineralogists sometimes called *witherite.* It is a dense substance, its specific gravity being about 4·331; it is sometimes translucent and nearly colourless, but is often opaque. It sometimes occurs crystallized, and the primary form is a right rhombic prism, but it usually has the form of a six-sided prism.

Carbonate of barytes is so nearly insoluble in water as to require about 4300 times its weight at 60°, and 2300 at 212° for solution; and it is entirely insoluble in water containing any salt in solution. It is poisonous, and suffers no change by exposure to the air; when strongly heated with charcoal it is decomposed, and on the addition of water a solution of barytes is obtained. It consists, according to Dr. Thomson, of

1 equivalent of carbonic acid			22
1	do.	barytes	76
			98

It is used for the purpose of dissolving in various acids to procure barytic salts, and, when heated with charcoal, also for preparing barytes, especially when it is wanted merely in solution in water. Bicarbonate and sesquicarbonate of barytes may be formed, but they are unimportant compounds.

Muriate of barytes.—This salt may be procured by saturating the acid with barytes, or more economically by decomposing the sulphuret of barium or carbonate of barytes with the acid. The solution, when pure, is colourless, and by evaporation yields rhombic crystals of muriate, composed of nearly

1 equivalent of muriatic acid			37
1	do.	barytes	76
1	do.	water	9
			122

These crystals dissolve in five parts of water at 60°, and in a smaller quantity of boiling water. They are not altered by exposure to the air. When exposed to a red heat, 122 parts of the crystals yield 18 parts of water, and 104 parts of chloride of barium remain.

This salt is decomposed by the same substances as produce this effect upon the acetate. It is used as a chemical re-agent.

Nitrate of barytes is readily procured by adding nitric acid either to barytes, its carbonate, or to the solution of sulphuret of barium. The solution is colourless, and by evaporation yields crystals, the form of which is the regular octahedron.

This salt requires 12 times its weight of water at 60° for solution, and between 3 and 4 times its weight at 212°. It is not altered by exposure to the air, but when strongly heated it is, as already noticed, decomposed, and barytes remains in a pure state. This salt consists of, according to Dr. Thomson,

1 equivalent of acid			54
1	do.	barytes	76
			130

The crystals contain no water.

Sulphate of barytes.—This compound occurs largely in many parts of the earth, especially in the lead mines of the north of England: it occurs both amorphous and crystallized. In the former state it is sometimes colourless and transparent, and frequently opaque. The crystals are often very large, and the primary form, subject to many varieties, is a rhombic prism. It is extremely heavy, its specific gravity being about 4·7. It is unalterable in the air, insipid, and insoluble in water; indeed, strong sulphuric acid is the only fluid which dissolves it in any notable quantity, and from this it is precipitated by water. It is composed of, very nearly,

1	equivalent of sulphuric acid	40
1	do. barytes	76
		116

The native crystals contain no water.

Heat produces no decomposition in sulphate of barytes; but, as already noticed, when heated with charcoal, it is converted into sulphuret of barium. When boiled also in a solution of carbonate of potash, a portion of it is converted into carbonate of barytes; but the decomposition takes place only to a limited extent.

Sulphate of barytes is formed whenever a soluble sulphate is added to a solution either of barytes or any salt of barytes. It is on account of the extreme insolubility of this salt that it and sulphuric acid, and all sulphates, are used as tests of each other's presence.

When sulphate of barytes is only moderately heated with carbonaceous matter, a solar phosphorus is formed, which is called the *Bolognian Phosphorus*. [See PHOSPHORUS.]

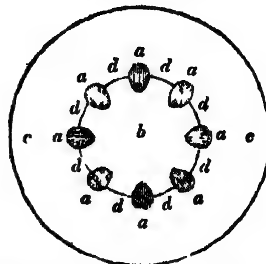
BARJOLS, a town in France, in the department of Var, 513 miles S.S.E. of Paris, in 43° 31′ N. lat., 6° 0′ E. long. It is on the left bank of a small stream which flows into the Argens, of which river the western part of the department forms the basin. The time of the foundation of this town is uncertain. In 1060 it belonged to Rimbauld or Raimbault, Archbishop of Arles, who bestowed the town on the church of Notre Dame de l'Espinn, which he founded here in 1060. The then reigning pope, Alexander II., exempted this church from the jurisdiction of the Bishop of Fréjus, in consideration of an annual tribute to the papal see; but the Bishop of Fréjus resisted this exemption, and succeeded at last in bringing the church, on certain conditions, under his superintendence. This church was collegiate: among other relics, it contained the body of St. Marcel, Bishop of Die; but the Calvinists having in 1562 become masters of the town, burnt this relic, and the townsmen were only able to preserve one of the fingers. Before the Revolution there were at Barjols a convent of monks of the order of St. Augustin, and a nunnery of Ursulines. The trade carried on is chiefly in oil, wine, brandies, paper, leather, and silk. Leather is manufactured in considerable quantity: the *Dictionnaire Universel de la France* (Paris, 1804) assigns to the town sixteen tan-yards. The manufactures of paper, silk twist, earthenware, and white wax, are less important. The population in 1832 was 3512. In the *Dictionnaire des Gaules* it is mentioned that three considerable fairs were held yearly.

In the subterranean sacristy of one of the former convents of this place (called the Convent of the Carmelites—but we have no account of that order having a house here) are some remarkable congelations, in which the spectators imagine they can recognize the figures of animals and fruits. Some subterraneous caverns also offer remarkable specimens of stalactites. From these caverns sand suited for glass-works is procured.

The country round is very delightful. There is a silver mine near the town, but whether it is now worked does not appear from our authorities. (Expilly, *Dictionnaire des Gaules*, &c.; *Dictionnaire Universel de la France*, &c.)

BARK, in vegetable physiology, is the external coating of the stem and branches of plants, ensheathing the wood. In woody Exogens it separates spontaneously from the wood in spring and summer, and in herbaceous plants of the same class it may be easily removed with a little care; but in Endogens and Acrogens it is so continuous with the central part of the stem, that it can never be divided except by violence, and by lacerating the tissue which lies immediately below it. This difference arises from the manner in which the plants of these three great natural classes respectively grow. Exogens add annually new matter to the inside of their bark and the outside of their wood, which renders it necessary that a spontaneous separation of wood and bark should take place in order to make room for the newly generated substance; but Endogens, which grow by addition to their centre, and Acrogens, by elongation of their point, require no such separation. [See EXOGENS and ENDOGENS; and for ACROGENS, a word of very recent invention, see the article BOTANY.]

Bark may be considered to originate thus:—When a plant is in the state of embryo, that part which finally developes into a stem and root, or, as botanists say, into the axis of growth, is something like two cones applied to each other by their bases, but it will simplify our ideas if we consider it as a cylinder. In a dormant state it consists of nothing but cellular substance; but in Exogens, as soon as the cotyledons, or seed-leaves, are roused into growth, woody matter is generated in the form of a number of little bundles, which are arranged in a circle (*a a*) about half way from the centre



to the circumference, thus forming a sort of hollow cylinder within the first. The cylinder so commenced cuts off the cellular substance into two parts: one central (*b*), which finally becomes pith, and the other external (*c*), which becomes bark; the two maintaining their connexion by means of the passages (*d d*) between the woody bundles (*a a*). These passages ultimately become the medullary processes. The direction thus given in the beginning to the several parts in the interior of an Exogenous stem is never afterwards departed from; but all the additions which are subsequently made are moulded, as it were, upon this original form. The woody bundles (*a a*) increase in size by growing outwards, and consequently the medullary processes are extended; the bark continues to grow and give way to the pressure of the wood from within, till at last a year's increase has been accomplished. Up to this time no separation between the wood and the bark has taken place; but in a second year, as it is necessary for the new matter to be added to the outside of the wood and to the inside of the bark (at *d d*), a spontaneous separation of the two takes place over the whole surface of the wood, the medullary processes softening, stretching, and growing externally in order to admit of such a separation. But Endogens and Acrogens always retain their bark in the same connexion with the wood as it is in Exogens at the end of the first year, there being no necessity for a separation between the two in order to admit of subsequent growth.

In its anatomical structure bark consists of a mass of cellular tissue pierced longitudinally by woody matter, which is composed entirely of woody tubes without any trace of vessels, but which is sometimes accompanied by long fistular cavities, in which resinous, or milky, or juicy, or other secretions are lodged. [See VASCULAR TISSUE.] The only known exceptions to the rule, that vessels are never found in bark, occurs in Nepenthes, where they have been discovered by Dr. Lindley. Their constant absence from this part seems to be explained by the nature of their functions. For if, as there is the best reason to believe, they are in one state required to furnish a constant supply of oxygen to the newly forming organs, or, in another state, their office is to convey fluid with great rapidity to the growing leaves, they would in either state be useless in the bark, which, as will be presently shown, is not the channel through which the organizing principles are conveyed, but merely a passage for the return of matter after its organizing effects have been accomplished.

In the first year of its existence bark is a cylinder, the woody matter of which is a continuation of that of the wood itself. In Endogens and Acrogens it undergoes no material increase or alteration subsequently, unless it be that the parts are increased in quantity without shifting their position. But in Exogens, in consequence of their wood being annually augmented by external additions, as before stated, the bark undergoes annual changes. Corresponding with the annual additions to the wood are annual additions to the inside of the bark, consisting of a cellular layer overspreading the whole of the inside, and then a layer of woody matter, which answers to the spaces of wood included between the medullary processes. These annual additions, which are called the *liber* (whence books, which were written upon such layers properly prepared, were called *libri*), must therefore be exactly the same in number as the annual layers of wood, and would be arranged with equal regularity if the bark were not affected by any disturbing cause. But in

consequence of the wood's perpetual increase in diameter, there is an incessant lateral strain upon the liber, so that after the first year there is little trace of regularity to be discovered in the structure of the bark. It soon becomes a mere confused mass of woody tubes and cellular tissue, in which all trace of annual concentric formation has disappeared. The manner in which it was originally generated is, however, said to be detected in some plants, by the facility with which the bark will peel into layer after layer; but it may be doubted whether this phenomenon is not more connected with the original arrangement of the ultimate vesicles of the bark than with the annual formations. These layers are sometimes so numerous, that as many as 150 have been separated on a single tree.

When young, the bark is overspread with a thin transparent skin, which may be pulled off, and which allows the green matter with which its cells are at that time filled to be seen through it [see CUTICLE]; but this is soon ruptured by the expansion of the bark, and is never renewed. The green matter, also, after exposure to the air, becomes brown, and loses its vitality; so that the bark of an exogenous tree consists, after a year or two, of living matter in the inside, and of dead matter on the outside. There is a perpetual tendency to throw the dead part off, which is evinced either by rending into perpendicular fissures, such as are seen upon old trunks, or by peeling away layer after layer, as in the birch-tree, or by the rejection of irregular plates of inconsiderable size, as in the plane-tree. The cork of commerce is the dead part of the bark of the cork-tree, which is readily separated from the living portion at the time when the latter adheres firmly to the wood.

That the bark of Exogens is thus continually perishing externally and renewing internally, is proved by a very simple experiment. Let a name be cut upon the bark of a rapidly growing tree; in a few years the letters will have disappeared. Or let a nail be driven into the bark; in time its head will be distinct from the substance in which it was originally buried, the upper part will next become visible, and in course of time the nail will be entirely thrown off.

In Endogens the only alteration which takes place in the bark, from the period of its first formation, consists in its becoming more fibrous, and losing its green colour. In Acrogens it becomes simply harder.

The bark is always of considerable thickness in proportion to the wood, especially in younger branches, and it contains a considerable quantity of air in the cavities of its cells. These two circumstances render it well adapted for one of its functions, namely, that of protecting its newly-formed wood and its own liber from the effect of changes in temperature. This is more amply provided for in trees of cold climates than in those of hot ones. For example, the bark of the Douglas fir, which bears the utmost inclemency of cold on the north-west coast of America, is a foot or fifteen inches thick; and in the birches, which are among the most hardy of northern trees, it is the quantity of air which lies among the tissue that gives to their bark the white appearance for which it is remarkable, and that, from its buoyancy, renders it particularly well-adapted for the sides of canoes.

Another of its offices is, to act as the channel through which the fluids that are elaborated in the leaves descend towards the roots, and reach the heart of the stem. Connected as it is with the medullary rays by myriads of points over its whole internal face, it is admirably adapted for keeping up a communication between the centre and the circumference of a tree. The woody tubes of its liber furnish a ready mode of descent for those fluid substances, such as gum, which are not intended to be stored up in the heart-wood; while its cellular matter serves for the gradual percolation downwards of those other secretions which are intended to pass into the medullary processes; and the looseness of its texture readily admits of the formation of the fistular cysts called *vasa propria* by botanists, in which matter like resin may be stored up. Dutrochet, indeed, has asserted that bark also acts as a conveyance for fluids upwards; but if this happens at all it must be in a very slight degree, or in cases where bark acts as a universal leaf, of which mention will be made presently.

That bark is really the channel for the descending sap is easily ascertained at the time when trees are growing, by cutting out a ring of bark clean down to the wood, when drops of fluid will be seen to form upon the upper lip of the wound, while the lower will remain dry; or the same experiment may be made by tying a piece of cord tightly round a branch, when the part above the ligature will be swelled by the descending matter which collects there, while the part below the ligature will undergo no alteration.

Such being the function of the bark, we are able to understand why trees do not immediately perish when large pieces of their bark are torn off all round their trunk, and why they can even exist some months after having been barked by the tanner. The young wood carries up the nutritive fluids whether the bark is present or not, and it is extremely probable, that when the bark is destroyed the external portion of the wood has its functions altered, and may act as a temporary conveyance for the returning sap; but when wounds are very large this cannot happen for any great length of time, because a renovation of the wood, which, when young, is destroyed by exposure to the atmosphere, cannot take place in the absence of bark, its natural guardian. When wounds are inconsiderable, the upper lip of the bark gradually grows downwards till it meets the lower lip, where an adhesion takes place, and the wound heals over; or, in some cases, the mouths of the medullary processes, which are laid bare by the removal of the bark, will form granulations which gradually extend over the whole surface of the wound, and so repair the loss of the bark itself; or, finally, if the communication between the upper and lower lip is not wholly cut off, a lateral transfusion of the descending sap will take place, and the whole of the returning current will be gradually diverted to the channel of communication which then remains; but if none of the above circumstances take place, a plant must eventually die from the loss of its bark. This at least is unquestionably the case with Exogens: whether or not the destruction of the cortical integument of Endogens is equally important is not so certain; possibly it is not, for it is probable that in those plants the bark acts merely as a protecting organ, and that it has little or nothing to do with the march of the fluids.

It sometimes happens that bark has another and a different function to perform, as in what are called succulent plants, which have no leaves except rudimentary organs, that perish almost as soon as they are generated: such are *stapelias* and *cacti*. In these subjects the bark undoubtedly performs the function of the leaves themselves [see LEAF]; and in this case it is presumed that if there is any transmission of elaborated fluid towards the roots, it must take place by means of some especial contrivance, of which we have no precise knowledge.

It is in consequence of the bark being both the channel through which the elaborated sap descends, and the repository in which it is partly stored up, that it is found to contain a so much larger proportion of the chemical principles of a plant than any other organ. It is in bark that we find the essential principles of the oak, the larch, and other trees used by tanners; and of the cinnamon, the cinchona, and other aromatic or febrifugal species: and that we procure, by wounding it, such matters as resin and gum, which readily flow from incisions made in it. As all such secretions are formed by the leaves and become solidified by a loss of water in consequence of evaporation, it would follow that the proper time for collecting them is at the period when the leaves have performed their office for the year, and all superfluity of moisture has been parted with this period is winter, or the season of torpor. But as at that time the liber adheres firmly to the wood, the spring is more frequently chosen for barking; and theory would say, that the proper time is just at the moment when the sap begins to be in motion, and the liber and sap to separate, and before the secretions have been diluted or dissolved by the ascent of fluid from the earth. But this will obviously depend upon the nature of the substance which is sought for: for example, the greatest quantity of tannin is found in the youngest liber; therefore, bark for tanners' purposes should be stripped just before it begins to adhere to the wood after the leaves are fully formed, and when they are in full action; because at that time the whole of the liber which is formed during the year is developed, and few chemical changes have begun to take place in its constituent parts. Turpentine, again, will only flow in the summer; and therefore that which is to be obtained by a spontaneous emission must be sought for at that season.

Independently of its chemical properties, bark is of great occasional importance for its organic products. The woody tubes of the liber are often so tough as to be fit for cordage; and ropes have been manufactured from that of the willow, the lime, the cocoa nut, the *hibiscus tiliaceus*, and many

other plants. The liber of the lime tree, the bread-fruit-tree, and the paper mulberry is torn into slips and manufactured into useful mats; or, in the case of the two latter, is macerated and beaten in water till it becomes thin enough to be used as linen. A most elegant preparation of the liber is obtained from the *lace bark* tree of Jamaica, a kind of spurge laurel (*Daphne*): in that plant it is very white, separates freely into a great number of layers, and may be easily converted into a substance very much resembling lace. This is effected simply by pulling the liber sideways, when its woody tubes separate into a delicate net-work of lozenge-shaped meshes.

The liber undoubtedly derives its organic origin from the leaves and leaf buds, and is, in theory, part of an inferior development of those organs, having the same relation to them as the roots have to a young plant. For an explanation of this doctrine, see Wood.

BARK-BED, in horticulture, is a bed formed of the spent bark used by tanners, placed in the inside of a brick pit in a glazed house, constructed for forcing, or for the growth of tender plants.

The object of a bark-bed is to produce artificial warmth by the fermentation of the materials of which it consists, and at the same time to keep the atmosphere of the house constantly damp. Gardeners use it for all plants which require what they call bottom heat, that is to say for all species which are natives of tropical climates, and for pine apples especially, but it is not employed in the cultivation of greenhouse plants, except sometimes for striking their cuttings. [See Cuttings.]

In constructing a bark bed, the coarsest bark which can be obtained after the tanners have used it should be selected, because it is found that the slowness of the fermentation, and consequently the steadiness of the heat given off, is in proportion to the size of the fragments of bark employed: small tan, broken into minute pieces by machinery, although often the only material to be had, should consequently never be used if it can be avoided. After having been slightly dried by being spread in the sun the tan is first laid in heaps, covered with mats, until fermentation has commenced; it is then transferred to the brick pit, in which it is finally to remain. Having been lightly but evenly arranged in the pit, and the glass roof of the house having been closed, the tan is left to undergo fermentation, which at first is violent, evolving more heat than any plants could bear. But in a few days it subsides, and when the temperature of the bed has fallen to 96°, it is in a proper state to receive the pots, which are to be plunged in it. The heat will gradually, but very slowly diminish to 60°, below which it is scarcely desirable, in the opinion of gardeners, that the tan should be retained; but the temperature may a second time be raised to 70° or 80°, by turning the tan over, or fermentation may be further renewed by the addition of a small quantity of yeast. The temperature of the tan is generally judged of by feeling the end of a stick which is thrust into the centre of the bed, but as it is impossible to use so rude a test as this with any accuracy, it is now more customary to employ what is called a Breegazzi's thermometer, which consists of a common thermometer introduced into the hollow end of a pole, and thus protected from being broken when thrust into the tan.

It is, however, found that, after procuring the best kind of material, the heat of a bark-bed cannot be maintained so steadily or so long as is desirable: and it has been recommended to substitute fallen oak leaves, which can easily be collected in the autumn. These ferment much more slowly than oak-bark, and never acquire so high a temperature as the maximum of that substance, and as they are less expensive, they should always be used when they can be procured. It is, however, to be remembered, that no other leaves than those of the oak, or of some other plant equally abounding in tannin, answer the purpose so well.

Notwithstanding the quantity of heat given out by a bark-bed, it is always found necessary to employ some other mode of warming a house in addition—either by smoke-flues, or hot-water, or steam-pipes; and this being the case, and such contrivances being of themselves sufficient to raise the atmosphere to any temperature that can be required, a question has been started, whether a bark-bed is really of any use. We have already stated that the object of a bark-bed is to produce artificial warmth by fermentation, and moisture in the atmosphere by parting with its water. So far as these objects go, they can certainly be abundantly and more efficiently supplied by other means: the warmth by flues or water-pipes, and the moisture by open tanks, or by steam cocks, or by watering the floors and walls of a hot-house. But there still remains what gardeners call *bottom-heat*—a word in which one would think there was some magic, such wonderful effects do they attribute to it. But whatever may have happened when those central fires, in which some philosophers believe, were in action near the surface of the earth, there is no case now known in which plants grow in a soil which even approaches to such a temperature as that supplied by a bark-bed. On the sandy shores of some tropical countries, where the thermometer, plunged into the earth, will sometimes stand at 120°, no plants can grow except a few bulbs, which are buried deep below the surface, and beyond the reach of this excessive heat. In the naked plains of the tropics, where the temperature of the soil must necessarily be the highest from the beating of the rays of a vertical sun, vegetation is always starved and stunted, and fitted only for the sustenance of hard, wiry grasses, shrubs whose branches are converted into spines, and palm trees, while in the forests and woodlands of those same countries, where the earth is constantly shaded and cool, the most splendid specimens of vegetation are developed. No observations have, as far as we know, been made upon the temperature of the earth in such situations, but there is a test by which it may be judged of with some accuracy. It is well known that in most tropical countries there exist plants called water-vines, climbing or twining plants, whose stems, when wounded, discharge a considerable quantity of clear fluid which travellers drink with avidity, in consequence of its delightful coolness. We have for instance, the *Tetracera potatoria* in Sierra Leone, and *Phytocrene gigantea* in India. Now the coolness of the sap of these plants must be owing to that of the earth from which the roots extracted it, and therefore it would appear that the temperature of the earth in the wooded parts of the tropics is not greater in proportion to the atmospheric heat than in this country, *except in plains where plants can scarcely grow*. We may therefore conclude that bottom heat is useless, or worse, and that bark beds are only rude and expensive contrivances to obtain heat and moisture in a hot house.

BARK. There are several kinds of bark, which enter largely into commerce, and are used for processes in the arts, or for medicines. The principal kinds in the first of these classes, of which we shall give some account, are—

Oak Bark,
Cork Bark,
Mimosa or Wattle Bark, and
Quercitron Bark.

Among the descriptions of bark used for medicines we shall notice only that known under the name of Jesuits' or Peruvian Bark: the others are not of much commercial importance. Some other kinds of bark, as Cinnamon and Cassia, will be noticed in other parts of this work.

Oak Bark.—(German, *Eichenrinde, Lohe*; Dutch, *Run, Runne*; Danish, *Bark, Garverbark*; Swedish, *Bark, Ekbark*; French, *Tan, Brut, Ecorce de Chêne*; Italian, *Scorza di Quercia, Corteccia della Quercia*; Spanish, *Corteza de Encina*; Portuguese, *Casca do Carvalho*; Russian, *Dubowaja Kora*; Polish, *Dab Garbarski*; Latin, *Quercus Cortex*.)

For a long time, oak bark was the only substance used in England for the process of tanning; and it was thus employed for ages, without the tanners knowing what were the properties of the substance which produced the chemical change whereby hides are converted into leather. The increasing demand for oak bark beyond the means of supply so raised its marketable value, that an investigation became necessary, in order to ascertain whether, when the nature of those properties was discovered, some cheaper substances might be found to answer as substitutes.

Other substances besides oak-bark had before that time been used for making leather in other countries. Among these substances were heath, gall nuts, birch-tree bark, myrtle-leaves, leaves of wild laurel, and willow-bark. In 1765 oak saw-dust was applied with some success in England to the purpose of tanning; and this plan has been since pursued in Germany.

The result of investigations showed that the tanning power of oak-bark resided in a peculiar astringent substance, to which, from the use to which it is applied, the name of *tannin* has been given. In more recent times, Sir Humphry Davy determined, by a series of experiments, the relative

value to the tanner of different substances in which tannin is found; and he has shown that 8½ lbs. of oak-bark are, in this respect, equal to lbs. of galls, to 3 lbs. of sumach, to 7½ lbs. of bark of the Leicester willow, to 11 lbs. of bark of the Spanish chestnut, to 18 lbs. of elm-bark, and to 21 lbs. of common willow-bark.

To prepare oak-bark for use, it is ground to a coarse powder between cast-iron cylinders, and in that state is put into the tan-pit, in alternate layers, with the skins to be prepared. A better method sometimes employed is to make an infusion of the bark in water, which dissolves and holds the tannin. The action of this substance upon skins may be explained in a few words. Before the skin is subjected to the tanning process, the hair, epidermis, and any fleshy or fatty parts adhering to them, must be removed; the remainder consists wholly of gelatine, a substance capable of being dissolved in water, and which then forms the substance well known as glue. Tannin, as we have seen, is likewise readily soluble in water; but the two substances, when brought together, form the insoluble and imputrescent compound called leather.

It has been found that the proportion of tannin which oak-bark contains varies materially according to the season in which it is cut. If taken in the spring, it has four and a half times the quantity, in a given weight, compared with what it would have if cut in winter. Sir Humphry Davy likewise discovered that the proportion is influenced by the age of the tree, tannin being more abundant in the bark of young than of old trees.

In the books of the Custom House no distinction is made between different descriptions of bark used for tanning and dyeing; so that we do not know exactly the quantity of oak-bark which we receive from foreign countries. A very near approximation to the truth may be made, however, by knowing the places whence the importations are brought. Judging in this manner, it appears that, in addition to the supply of British growth, as to the amount of which we have no means of judging, the annual consumption of oak-bark in the United Kingdom is about forty thousand tons, more than one-half of which is brought from the Netherlands, the remainder coming from Germany and ports in the Mediterranean. The duty payable on importation, if from any British possession, is one penny; and if from a foreign country, eightpence per hundred weight.

Cork Bark. (German, *Kork;* Dutch, *Kork, Kurk, Vlothout;* Danish, *Korktræe;* Swedish, *Korktra;* French, *Liége;* Italian, *Sughero, Suvero;* Spanish, *Corcho;* Portuguese, *Cortiça de Sovreiro;* Russian, *Korkowoe-derewo;* Polish, *Korkowa;* Latin, *Suber.*)

The substance commonly known as cork is the outer bark of an evergreen oak, which grows abundantly in Portugal, Spain, the south of France, and Italy. The greatest quantity of cork-bark used in Europe is supplied by Spain and Portugal, but that which is of the best quality is grown in France.

Cork was known and used by the Greeks and Romans, the latter of whom sometimes employed it as we do, for the stopping of casks, and also for the soles to women's winter shoes. (Plin. xvi. 8.)

The careful removal of the outer bark from the cork-tree does not in any way injure it, as this outer bark is really dead bark; on the contrary it is stated that the tree grows more vigorously and lives longer, in consequence of being thus stripped. This operation is first performed when the tree is about fifteen years old, and may be repeated once in every eight or ten years.

The first stripping is of little or no value; but the produce becomes greater in quantity and better in quality at each successive cutting. The months of July and August are chosen for performing this operation. A cork-tree, thus periodically barked, will live for a century and a half. The inner bark contains a considerable proportion of tannin, but cannot be removed without killing the tree. This destructive plan is resorted to in Corsica, where the cork-oak is indigenous, and so abundant, that vast numbers of the trees are cut down every year, the outer bark being used as cork, which, however, is not of good quality, the inner bark being sold, principally at Marseilles, to the tanners; and the trunks and branches being burned for the sake of the ashes. It is usual, when cork-bark is taken from the trees, to char it slightly, in order to improve the texture by closing the pores; but this burning occasions that peculiar and disagreeable empyreumatic flavour which is so frequently imparted to liquors which have been stopped by cork thus treated. Some years ago an attempt was made to avoid this evil by using cork-bark which is not so old, the texture of which is so close as not to need the aid of fire; but this bark is too thin for ordinary purposes, and could only be used by cementing two or more layers of it together. The risk of bad flavour was by this means altogether avoided; but, for some reason or other, the plan has not been persevered in.

Cork is light, porous, readily compressible and very elastic. The first-mentioned of these qualities, its lightness, occasions it to be used as floats for fishing-nets, &c. For its more general employment, that of stopping bottles, it is peculiarly fitted by its compressibility and elasticity, while its pores are sufficiently minute to prevent the passage through them of the fluids which it is meant to confine.

The quantity of cork-bark annually imported for use into this kingdom, on an average of the last five years, is 44,551 cwts., nearly the whole of which comes from Portugal, whence it is brought principally as dunnage in ships loaded with wine. It pays a duty on importation of 8*s.* per cwt. A protecting duty in favour of the cork-cutters of England is imposed upon manufactured corks, amounting to 7*s.* per lb.

Mimosa, or Wattle Bark.—This bark is collected from two species of the mimosa, which are plentifully found in New South Wales, Van Diemen's Land, and New Zealand, where, at least in the British settlements, it is used for the manufacture of leather. This bark contains about 150 lbs. of pure tannin in every ton weight, which is only about three-fifths of the proportion yielded by the best white oak bark. It is also said that it gives a reddish colour to the leather, which, although it does not actually lower its value in use, creates a prejudice against it in the market. As long ago as 1823 a small quantity of fluid extract of this bark was brought to London from Australia, and, after having been subjected to trial by some tanners, was purchased by them. Since that time, importations of the bark in its crude state, as well as in the form of an extract, have continually been made. The importations into the United Kingdom, during the years 1832 and 1833, were 28,410 and 24,540 cwts. respectively: it is subject to the merely nominal duty of 1*d.* per cwt.

Quercitron Bark.—This name has been given to the bark of a description of oak, the *quercus nigra*, or *tinctoria*, which is a native of North America. It is used as a dyeing stuff for imparting a yellow colour, the different shades of which depend upon the choice of the substance employed as a mordant. This bark was first brought into use in England by Dr. Bancroft, who obtained an exclusive patent for its application to this purpose. The colouring matter resides wholly in the inner bark of the tree; the outer bark is therefore removed previous to its being packed in casks for shipment. Quercitron bark which has been previously ground in a mill gives out its colouring matter to water when heated to the temperature of 100° Fahrenheit. If a higher degree of heat be used, the *tannin* which the bark contains will also be dissolved, and this will impart a brown tinge to the dye which it is desirable to avoid. For this reason the dye must always be separated from the bark before it is used. The colouring matter obtained from the quercitron-bark of commerce is equal to that yielded by eight or ten times its weight of weld. The average annual consumption of quercitron-bark in this country, during the five years ending with 1831, was 22,625 cwt. Since that time no separate account of this article has been kept at the Custom-house: it is subject to an import duty of 8*d.* per cwt.

Peruvian Bark.— German, *Chinarinde, Fieberrinde;* Dutch, *Kina, Quinquina;* Danish, *Kina, Chinabark;* Swedish, *Feberbark;* French, *Quinquina;* Italian, *China;* Spanish, *Quina;* Portuguese, *Quinquina;* Russian, *Chinchina;* Polish, *Kwinkwinna;* Latin, *Cinchona, Cortex Peruvianus.*

Three principal species of this bark are known in commerce, viz., the pale, the red, and the yellow Peruvian bark. The first of these, the original cinchona of Peru, is now become scarce. It is the produce of the *cinchona lancifolia*, and is imported in chests, each containing 200lbs. weight, and carefully covered with skins. It comes in quilled pieces from eight to ten inches long, and of various thicknesses. Internally the colour is of a pale fawn or cinnamon hue, but when moistened the bark assumes a pale orange colour. It

is nearly odourless when dry, but is very sensibly aromatic while under the process of decoction.

Red bark is taken from the *cinchona oblongifolia*, which is found growing on the Andes. It is imported in various-sized pieces packed in chests, containing each from 100 to 150 lbs. Its colour is that of a reddish brown: its taste is not so bitter as that of the pale variety, but greatly more astringent.

Yellow Peruvian bark was first brought into use in England about the year 1790: it is obtained from the *cinchona cordifolia*, which grows at Quito and Santa Fé. This variety is imported in pieces, some quilled and others flat, of from eight to ten inches in length, packed in chests containing from 90 to 100 lbs. each. The colour approaches to that of an orange; it gives out, in decoction, an odour very similar to that of pale bark; its taste is more bitter, but it is not astringent. Its goodness is judged of by the colour. If it loses its orange tint, and takes that of pale yellow, it is not so valuable, and it is still worse when of a dark colour, between red and yellow.

It is said that the native Indians were unacquainted with the medicinal virtues of this bark, and that its efficacy in cases of fever was accidentally discovered by the Jesuits, whence the name, by which it is very generally known, of Jesuits' bark. It was first brought to Europe in 1632, but more than half a century elapsed thereafter before its use became at all extensive in this quarter of the world. Humboldt states that from 12,000 to 14,000 quintals, or cwts., are annually exported from Peru. The quantities imported into this kingdom in 1832 and 1833 were 356,998 and 253,767 lbs. respectively, but nearly the whole was re-exported to other parts of Europe, the quantity retained for consumption in the two years having been only 49,525 lbs. It pays a duty, on importation, of 1*d.* per lb.

(Thomson's *System of Chemistry*; *Library of Entertaining Knowledge, Vegetable Substances*, vols. i. and iii.; *Government Statistical Tables*.)

BARK, PERUVIAN, MEDICAL USES OF. [See CINCHONA.]

BARKAL, JEBEL BARKAL, a remarkable sandstone-rock in Nubia, which stands isolated about a mile from the right bank of the Nile, near the village of Merawe, and in the district of the Sheykiâ Arabs, which now forms part of the government of Dongola under the Pacha of Egypt: Barkal is in 18° 31′ N. lat., and 31° 46′ E. long. The rock rises abruptly on all sides, and quite perpendicularly on the side towards the river, to the height of nearly 400 feet, forming a wide plateau at the summit. Its circumference at the base is about twenty-five minutes' walk. It is evident, from the remains of several great temples at the foot of it, that it was a spot devoted in very remote times to religious rites. The temples, which are five or six in number, lie between the mountain and the river. The most remarkable are the one called the Typhonium, and the Great Temple. The Typhonium, the best preserved of all, was dedicated to Typhon, or the evil genius, as appears from several figures of Typhon still remaining. The temple is 108 feet in length; its entrance faces the S.S.E. The fore-part of the temple is a regular construction: and the further or inner part is excavated in the rock itself. In the first hall, or vestibule, are eight pillars with figures of Typhon, four on each side, forming the central avenue, or aisle, leading to a second chamber, which was covered by a stone roof supported by eight pillars with Isis-headed capitals. The pillars are 3½ feet in diameter and 18 feet high. The natives assured Rüppel that the roof had fallen in only twenty-five years before, in consequence of an earthquake. The third chamber, or cella, as well as the sanctuary beyond it, and also two lateral chambers, are excavated in the rock. Two more Typhon columns support the roof of the cella. The walls are adorned with hieroglyphics and figures of gods and kings in high relief; among which those of Isis, Ammon, Apis, Horus, and Mendes, are distinguishable. Several of the rilievos, however, have been defaced.

The Great Temple, which is one of the largest monuments in Nubia, lies north-east of the Typhonium, and is at some distance from the rock; it is likewise divided into halls or chambers, and was entirely a constructed edifice, but the walls are now a heap of ruins, and the bases and fragments only of its seventy-eight pillars are discernible. Two enormous propyla, each 65 French feet long and nearly 40 feet in thickness, form the front of the temple: the entrance between them is 13 feet wide. The first, or outer hall, is 126 feet long and somewhat less in width; the lateral walls are seven feet thick. This hall, which was adorned with several large pillars, was divided from the second hall by propyla 21 feet thick, between which is the entrance 13 feet wide. The second hall is 146 feet long and 85 feet wide. It had at the farthest end, leading towards the sanctuary, a portico consisting of three rows of pillars supporting a stone roof; the whole is now fallen to the ground. Only one of the pillars was standing when Mr. Waddington visited Barkal: it was 24 feet 6 inches in height, and was composed of sixteen pieces of stone. The third chamber is 53 feet long and 41 feet wide, and it was separated by partition walls from two lateral chambers of smaller dimensions. The middle chamber has two rows of five pillars each, with as many sculptured square stones, one between each two pillars, and which Rüppel believes to have been votive altars. A passage 13 feet wide, like all the others in a line with the outer entrance of the temple, leads from this chamber into the next. It is 36 feet square, and stands, like the preceding, between two lateral chambers. At the farthest end, facing the entrance, is an altar of grey granite, four feet nine inches square at the base; the sides are beautifully-sculptured, though injured in several places. Of the two lateral chambers, one forms a side chapel with its small vestibule and sanctuary; but the other, or western one, seems to have been totally separated by walls from the remainder of the temple, the only entrance to it being by a passage through the exterior wall. Just outside of this passage stands an altar of freestone, about 10 feet long; the sides have bas reliefs, representing slaves of both sexes, with hands and feet tied, and a rope round their necks. Two vultures are behind them, as if eager to feast on their bodies. These are indications of human sacrifices being once in practice here. Within the insulated chamber is a square block of polished granite 7 feet 10 inches square, and sculptured with hieroglyphics. On the upper surface holes are seen, in which probably the statue of some deity was fixed. At the farthest end of the central chamber, or sanctuary, and behind the granite altar, is a narrow opening which leads into a succession of comparatively small chambers, of different sizes, and communicating with each other. These formed the farthest extremity of the building, the whole length of which is nearly 500 feet, according to Rüppel, in a line S.E. by S. and N.W. by N., the front being to the S.E. It is remarkable that the lateral walls, looking towards the N.E., are thicker than those on the opposite side. Both Rüppel and Waddington have given plans of this temple, but their respective statements of the dimensions differ in several particulars from each other. Mr. Waddington, however, acknowledges that he gives his ground-plan with some diffidence, owing to the ruinous condition of the building.

Near the Typhonium and the Great Temple are the remains of several other temples, and of another building made of brick, fragments of the lower wall of which are seen about two feet above the ground. Before the northern entrance of this building, two fine lions of red granite were found reclining at full length and looking towards each other. They are about seven feet in length. One of the two was broken into several pieces when first seen in 1820. (See *A Narrative of the Expedition to Dongola and Sennaar*, J. Murray, London, 1822.)

These two lions were brought from Barkal by Lord Prudhoe, in 1832, and they now lie at the entrance of the new Egyptian Room in the British Museum. The material is a flesh-coloured granite; and the execution possesses a high degree of merit, though one of the animals is superior to the other. Both of the lions are in a reclining posture, one lying on his right side and the other on the left. There are hieroglyphics and cartouches, supposed to contain proper names, on both of the figures.

At a quarter of an hour's distance from Mount Barkal, and both to the N.W. and S.W. of it, are two groups of small pyramids, of various sizes, many of them in good preservation. The largest of these which are entire is about 40 feet high. Several of them have small exterior temples attached to one side, with an outer door and an inner one walled up, leading apparently into the interior of the pyramid. The interior walls of these temples are ornamented with hieroglyphics and representations of apotheoses, &c. The roofs of the temples are flat, but one of them is arched, which is a remarkable singularity, as they all appear to be of the same age. They are probably sepulchral monuments, and

may have formed part of the Necropolis of Napata, the antient Ethiopian city which some suppose to have stood near this place. With regard to the great temples, Rüppel ascribes most of them to the age of Ethiopian greatness, after that nation had conquered Egypt, or about the eighth century before Christ. These ruins remained unknown to Europeans till 1820, when the expedition of Ismaïl Pacha penetrated into Dongola and Sennaar. The first European traveller who visited them was Mr. Waddington; he was followed by Cailliaud in 1821; and Cailliaud was followed by Dr. Rüppel in 1824-5, who has given a very minute description of them, from which the above details are mainly taken.

(Waddington's and Hanbury's *Visit to Ethiopia;* Cailliaud, *Voyage à Meroë;* Rüppel, *Reisen in Nubien, Kordofan, und Peträischen Arabien.*)

BARKING, a market-town in the county of Essex, about eight miles east of London. It lies in the hundred of Becontree, in a parish also called Barking, the circumference of which is about thirty miles: this parish contains 10,170 acres, of which 7850 is cultivated land, and about 1500 belonging to Hainault Forest, which includes within its limits the well-known Fairlop Oak; under the shade of which a fair is held on the first Friday in July. The name of the place is written *Berecking, Bereking, Berkyng*, in old records; and some antiquarians derive it from *Burgh-ing* 'The fortification in the meadow.' Some considerable entrenchments are still visible in the fields about a quarter of a mile north of the present town. The origin of the town is not distinctly ascertained; but the consequence which it ultimately acquired was certainly owing to its celebrated Abbey, the founding and subsequent establishment of which attracted an increasing population. This abbey, originally dedicated to the Virgin Mary, is said to have been the richest nunnery and the oldest foundation in England; but this is an error, as Folkestone nunnery in Kent was founded many years before; and both Shaftesbury and Syon nunneries were possessed of larger revenues. Barking Abbey was founded about the year 677, in the reigns of Sebba and Sighere, kings of the East Saxons, by St. Erkenwald, bishop of London, at the instance of his sister Ethelburga, who was appointed the first abbess. This lady and several of the following abbesses were canonized after death. In 870 the abbey was burnt to the ground by the Danes, and the nuns were killed or dispersed. Being within the territories ceded by Alfred to Godrun, the Danish king, it lay desolate until the middle of the tenth century, when it was rebuilt and restored to all its former splendour by King Edgar, the great founder and restorer of religious houses. Some historians state, that at the Norman conquest the Conqueror retired to this abbey soon after his arrival in England, and remained there until the completion of the fortress which he had begun in London. In subsequent times the government of the abbey was sometimes assumed by the queens of England; and a natural daughter of a king or prince of the blood is occasionally found occupying the office of abbess. In 1377 the convent petitioned to be excused from contributing an aid to the king at the time of a threatened invasion, on account of the expenses which they had been obliged to incur in repairing the great damages occasioned by a terrible inundation which in the preceding year had broken down the banks of the Thames at Dagenham; a similar statement was often made at subsequent periods: and in 1410 it is stated that the revenues of the convent were so much impaired, in consequence of the expenditure made necessary by inundations, that none of the ladies had more than fourteen shillings a-year for clothes and necessaries.

A considerable extent of ground called the Level, near the Thames, lies very low, so that in high tides the water is higher than this land, and would overflow it if not kept out by embankments. It is not easy to learn when an embankment was originally formed; but it appears that the Abbess of Barking was obliged to keep it up, and in order to assist her in performing the duty, she was privileged to cart wood from the forest, by the tenants of Barking and Dagenham, for the repair of the breaches of the embankment. In 1707 a breach was made by a high tide, which occasioned the loss of 1000 acres of rich land, and a sand-bank was formed at the mouth of the breach which reached almost half-way across the river, and was nearly a mile in length. The proprietors spent more than the land was worth in endeavouring to recover it, and then applied to parliament, which took up the matter as a public concern; and after the failure of another party in the attempt, a Captain Perry engaged to close the breach, make good the embankments, and remove the sandbank, for the sum of 25,000*l*. He completed this engagement at the end of five years, but at an expense of 15,000*l*. beyond his estimate, which was, however, afterwards made good to him by parliament. The whole bank is now kept in a very complete state of repair under the superintendence of commissioners. The bank is from eight to fourteen feet in height, and a path extends along the top for the whole distance.

The nuns of Barking were of the Benedictine order. The abbess was appointed by the king until about the year 1200, when, by the interference of the Pope, the election was vested in the convent, and confirmed by the royal authority. The abbess of Barking was one of the four who were baronesses in right of their station; for being possessed of thirteen knight's fees and a half, she held her lands of the king as a barony; and though her sex prevented her from having a seat in parliament or attending the king in the wars, yet she always furnished her quota of men and had precedence over other abbesses. In her convent she lived in great state: her household consisted of chaplains, an esquire, gentlemen, gentlewomen, yeomen, grooms, a clerk, a yeoman-cook, a groom-cook, a pudding-wife, &c. The last abbess was Dorothy Barley, who had a pension of 133*l*. 6*s*. 8*d*. per annum settled on her when the convent was surrendered to Henry VIII. in 1539: smaller pensions were also given to the nuns, then thirty in number. At that time their possessions were valued at the sum of 1084*l*. 6*s*. 2½*d*., according to Speed, or 862*l*. 12*s*. 2¾*d*., according to Dugdale. The manor of Barking, which seems to have formed part of the original endowment of the abbey, remained with the crown from the dissolution until 1628, when Charles I. sold it to Sir Thomas Fanshawe for 2000*l*., reserving to the crown a fee-farm rent of 160*l*., which is now payable to the Earl of Sandwich. The abbey-church and conventual buildings occupied an extensive plot of ground; but scarcely any remains are now standing. The site of the former is just without the north wall of the present churchyard.

Barking has considerably declined in consequence of the suppression of the abbey. It is situated on the Roding, about two miles north of the Thames. The river, which is wide, and receives the tide from the Thames as far as the town, is commonly called Barking Creek. It narrows very much immediately above the town, but has been made navigable for small craft as far as Ilford. The inhabitants consist chiefly of fishermen and of persons employed in conveying coals and timber from the Thames to the different towns in the district. A considerable number also find employment in conveying to the London market the potatoes and vegetables which the vicinity produces in abundance. The town has a free school, a market-house, and a spacious and convenient workhouse, erected in 1787, under the authority of an act of parliament. The church, dedicated to St. Margaret, formerly belonged to the abbey, and contains some curious monuments: the living is a vicarage in the diocese of London, the college of All Souls, Oxford, is patron. Two chapels, the one at Ilford and the other at Epping Forest, are annexed to the vicarage. The parish is divided into four wards, each with its separate officers. Barking-town ward has two churchwardens (one appointed by the vicar and the other by the parish) and an overseer. The lord of the manor holds a court every three weeks, in which causes of trespass and debt under forty shillings are tried. The population of the parish was 8036 in 1831; and that of the town 3404, of whom 1765 were females.

(Lysons' *Environs of London*, vol. iv.; Morant's *History and Antiquities of Essex*; Dugdale's *Monasticon*, &c.)

BARKWAY, an antient village of Hertfordshire, in the hundred of Edwinstree, 34 miles north of London, and 3 miles south of Royston. It stands on a hill, and on the principal road from London to the counties of Cambridge, Norfolk, and Suffolk, to which circumstance it is chiefly indebted for its prosperity, as it possesses but little trade. Norden says, that he had seen the place termed, in antient records, Bergwant, which signifies in Saxon 'a way over the hill.' At the time of the Conquest, the lands at this place were divided among four great lords into as many manors, and afterwards into eight manors. Barkway is called a 'town' by old writers; and it was privileged by Edward I. to have a market on Thursday, and an annual

fair for six days. In 1592, in the reign of Elizabeth, a great fire destroyed nearly all the houses. On their re-erection, the market was altered to Friday, and was subsequently discontinued in consequence of its proximity to Royston. Barkway is at present a large and populous village, consisting chiefly of one long street, which contains several good inns. The church is a handsome and spacious building, containing some fine old monuments, with fragments of painted glass in the windows, forming part of a series descriptive of the creation. The living, which is a vicarage in the diocese of London, is valued in the king's books at 13*l.* 13*s.* 4*d.* per annum. The population of the parish, which also includes the hamlet of Nuthamstead, is 1108, of whom 556 are females.

(Norden's *Speculum Britanniæ*, 1593; Chauncey's *Historical Antiquities of Hertfordshire*; Clutterbuck's *History and Antiquities of Hertfordshire, &c.*)

BARLAAM. This person would be of very little consequence, but for the fact that he is nearly the last of those who wrote in Greek on mathematics, and that his work is a curious illustration of the arithmetic which preceded the introduction of algebra and the Indian notation. His life, such as it is, is a commentary on the state of science during the fourteenth century. The accounts given of him vary greatly: the parts of this article which follow in brackets are abridged from the *Biographie Universelle*.

[Bernard of Seminara in Calabria was born about the end of the thirteenth century. He took the vows as a member of the order of St. Basil, and the name of *Barlaam*, at an early age.]

Boccacio, the novelist, who died about 1376, calls him a contemporary. [He went into Ætolia, and thence to Salonica, to study Greek, that he might read the works of Aristotle. In 1327 he went to Constantinople, and obtained the favour of the Emperor Andronicus the younger and his favourite, John Cantacuzenus, who obtained for him an abbey. He had previously adopted the tenets of the Eastern Church. He entered into controversy with Nicephorus Gregoras, by whom he was beaten, and then retired in disgust to Salonica. On the occasion of Pope John XXII. sending legates to Constantinople to treat for the re-union of the churches, Barlaam emerged from his retirement, and violently opposed the measure.] Moreri and others assert that Barlaam was sent to Benedict XII. (John's successor) to promote the above-mentioned object. This, if given out at all, was a pretext, for [Barlaam was sent to Italy in 1339, to endeavour secretly to procure assistance against the Turks and Bulgarians. In 1340 he returned to Constantinople, and resumed an old discussion with the monks of Mount Athos (and particularly with one of them, George Palamas), who asserted that the light seen on Mount Tabor during the transfiguration of Christ was a part of the uncreated essence of God. Barlaam denied it; and this controversy was carried to such a height that both parties demanded a council of the emperor, who convoked it accordingly, June 11, 1341. The monks of Athos got the better of the argument; and Barlaam, by advice of Cantacuzenus, gave in, and sought a reconciliation, which was effected.] Several accounts (from Cave, *Hist. Lit.*) state that he withdrew from Constantinople, and was excommunicated by the council. [He returned to Italy, and to the doctrines of the Western Church, and was by Clement VI. promoted to the bishopric of Geraci. It is said that he was Petrarch's instructor in Greek. He died probably about 1348.]

The works of Barlaam are theological and mathematical. The former are as follows:—1. *De Principatu Papæ*, printed in Goldastus, *Monarchia S. Rom. Imp.*, Hanover, 1614 (Latin only); also printed at Oxford, 1592, and by Salmasius, Leyden, 1645 (Greek and Latin); 2. *Opuscula*, printed in the *Bibliotheca max. vet. Patrum*, Leyden, 1677 (vol. xxvi. p. 4); 3. *Epistolæ ad Græcos de Unione*, &c., in Henry Canisius, *Thesaurus Monumentorum*, &c., Antwerp, 1725 (vol. iv. p. 361). The same work and volume contains, 4. *Ethica secundum Stoicos*, M. VI. C. (Latin), in two books; [5. *Orationes*, in Barovius, *Ann. Eccles.* year 1339, § xxv.] There are various other scattered pieces; in particular, one on the proper time of celebrating Easter.

The mathematical work of Barlaam consists entirely of arithmetic and arithmetical geometry, then called *Logistic*. It is written in Greek, in six books, and called Βαρλααμοῦ τοῦ Μοναχοῦ Λογιστικὴ βιβλίοις ἓξ ὡς εὐφυΐστατα περιειλημμένη. The first book is on the addition and subtraction of fractions; the second on their multiplication and division; the third on the multiplication and division of sexagesimals; the fourth on operations with surfaces and lines by means of numbers; the fifth on ratios, the sixth on numerical *data*. Delambre has reviewed the third book, *Hist. d'Ast. Anc.*, v. i. p. 320. It altogether gives us but a poor idea of the science of the age, and justifies Delambre's remark, that Barlaam must have had more leisure than ingenuity.

There have been two editions of this work: the first (Greek and Latin) by Dasypodius [see AUTOLYCUS], Strasburg, 1572. The history of the second is rather curious, if we consider how conversant the learned of that age (owing to the universality of the language they wrote) were with the labours of each other. Henry Savile, the author of the *Prælectiones in Euclidem*, and founder of the Savilian Professorships at Oxford, found a Greek MS. of Barlaam in his travels, and not being aware that it was already known, copied it and sent it to his friend, John Chambers, Fellow of Eton, who, equally ignorant that the work was already printed, published it with a Latin translation and scholia at Paris, in 1600. He added a dedication to Queen Elizabeth, and a preface, in both of which he spoke so freely of the exploits and foreign policy of England (specifying, by a sufficiently obvious implication, that the pope, the king of France, and the devil were in league), that the French government commanded an erasure of the passages mentioned; but (which is remarkable) inflicted no punishment on the editor, who was allowed to embark for England, and who secretly brought with him some of the copies. We learn these facts from an *Admonitio ad Lectorem* in the copies aforesaid, in which the worthy editor, though he has put brackets to the suppressed passages, very much wonders what offence he could have given, that '*vexaret censura columbas*.'

Barlaam is said to have written a work on right-angled triangles; and there is in the catalogue of De Thou's library the title of a work of his as follows: *Arithmetica Demonstratio eorum quæ Euclides libro ii. in lineis demonstravit* (no date or place).

Boccacio, above mentioned, wrote a work on the heathen gods, in which it is probable (Vossius *de Hist. Lat.* in verbo *Boccacius*) that most of what relates to the Greeks is on the authority of Barlaam. Boccacio speaks as follows:—'He was a man feeble in body, but very great in science, and so profound in Greek learning, that he had the certificates (*privilegia*) of emperors and princes, and learned men of that country, testifying that neither in these times, nor in many preceding ages, had there been a man of so great and excellent knowledge. Should I not therefore trust him in matters relating to the Greeks?'

Riccioli, in his *Chronol. Reform.*, speaks of two named Barlaam, the first a Calabrian, friend of Petrarch, and mathematician; the second, bishop of Geraci, who wrote in favour of the union with the Greek Church. The first he places A.D. 1330, the second 1303. He does not cite any authority, but we are not wholly indisposed to believe him.

The followers of Barlaam formed a sect (heretic in the Eastern, orthodox in the Western, Church) called Barlaamites, or Acindynites, from Acindynus, a Greek monk, who sided with Barlaam. These two were also associated in a dispute with others about the distinction to be drawn between the essence and operations of the Deity.

BARLÆ'US, CASPAR VAN BAERLE, was born at Antwerp in 1584. His father, who was the town registrar of Antwerp, left it when it was taken by the Spaniards, and settled in Holland. Caspar studied theology at Leyden, and afterwards took orders. In 1612 he was made sub-regent of the College of Theology at Leyden; and in 1617 professor of logic in that University. Having taken the part of the Arminians against the Gomarists, he was dismissed from his situation in 1619; and he then applied to the study of medicine, in which he received his doctor's degree at Caen in Normandy. In 1631 he was made professor of philosophy and eloquence in the newly-established University of Amsterdam, where his lectures were greatly applauded. He died at Amsterdam in 1648. He wrote a number of works, chiefly in Latin: among others, several panegyrical orations in praise of the great men of his time, Gustavus, Richelieu, Van Tromp, and others; several poems, two vols. 8vo. Amsterdam, 1645; an interesting history of Brazil, under the administration of Maurice, Count of Nassau, with the following title: *Rerum per Octennium in Brasilia et alibi nuper gestarum sub Præfectura J. Mauritii Nassoviæ Comitis, Historia*, fol. Amsterdam, 1647. Brazil was then

possessed partly by the Dutch and partly by the Portuguese. Barlæus gives many interesting details about that country and its aborigines, as well as about the events of the war carried on there between the Dutch and the Spaniards, Portugal and its colonies being at that time subject to the crown of Spain. The book is adorned with numerous maps and views of various parts of Brazil. Among his Latin poems is one called *Britannia Triumphans*, written on the accession of Charles I. to the throne. Barlæus's Dutch poems are less known, having never been collected together, but they are said to be written in an easy and pure style, and to contain many fine conceptions. His *Epistolæ* were published after his death, two vols. 8vo. Amsterdam, 1667. Of his controversial writings we may mention the *Antiputeanus*, 4to. 1633; and the *Lettres de Vicquefort, avec les Réponses de Barlée*, in Latin and French. According to the then prevailing fashion among the learned, he latinized his name, Baërle, into Barlæus.

BARLE'RIA, a genus of plants belonging to the natural order *Acanthaceæ*, and characterized at first sight by the spiny processes of its bracts, by the large size of the upper and lower sepals, and by its funnel-shaped corolla, which is often so twisted that the upper segment becomes lowest. The species are natives of various parts of the East Indies: a few of them have been introduced to our gardens, of which *Barleria lupulina*, with its large bracts resembling hops, and *B. Prionitis*, a common swamp plant in Java, are the most remarkable. They all require to be cultivated in a hot-house, and are propagated readily by cuttings.

BARLE'TTA, a town in the province of Bari in the kingdom of the Two Sicilies, situated on the coast of the Adriatic Sea, 43 miles E.S.E. of Foggia, and 112 E.N.E. of Naples, in 41° 20′ N. lat. and 16° 18′ E. long. The town is well built, and the streets are wide and well paved. The harbour is protected by a mole and by a small island, on which the light-house is built; it is only frequented by vessels of small burden, not having depth enough for larger ships. Barletta carries on a considerable trade with the other ports of the Adriatic; and here most of the corn, wine, wool, salt, lamb and kid-skins, and other produce of Puglia, are embarked for exportation. The country around is well cultivated, especially on the side towards Bari, and interspersed with neat casinos. The climate is extremely mild in winter, but is considered rather unhealthy during part of the summer, owing to the great marshes of Salpi on the left bank of the river Ofanto, which enters the sea three miles N.W. of Barletta. In one of the principal streets, near the church of St. Stephen, is a colossal bronze statue, 17 feet high, and of rude workmanship, said to be that of the Emperor Heraclius. Barletta does not seem to have been a place of any importance until after the Norman Conquest. Frederic II. of Suabia granted it some privileges, and his son Manfred resided for some time at Barletta, while he was directing the building of the new town of Manfredonia. Ferdinand I. of Aragon was crowned here. After the invasion of the kingdom by the French and the Spaniards in 1501, the conquerors quarrelled about the division of the spoil, and the French being more numerous than the Spaniards, Gonzalo of Cordova, who commanded the latter, was obliged to shut himself up in Barletta, where he was besieged, or rather blockaded, by the French under the Duke de Nemours. The Spaniards, having received reinforcements from Sicily, attacked the French, who were defeated in two battles, one at Seminara, 21st April, 1503, and the other, on the 28th of the same month, at Cerignola in the plains of Puglia, in which last Gonzalo commanded in person, and the Duke de Nemours was killed with 3000 of his men, after which the French evacuated the whole kingdom. During the siege of Barletta, the celebrated challenge took place between thirteen Italians, who belonged to the corps of Prospero and Fabrizio Colonna, which served with Gonzalo at Barletta, and thirteen Frenchmen from the besieging army. Some expressions derogatory to the Italian character which were uttered by a French knight occasioned the challenge. They fought, 16th of February, 1503, in a field near Quarato, half-way between Barletta and the French camp, and according to all the rules of chivalry. The famous Bayard and Prospero Colonna were the umpires. The result was, that the French champions were unhorsed and wounded, and one of them, a Piedmontese by birth, was killed. The others surrendered as prisoners, until they paid a ransom of 100 ducats in gold each, as it had been previously stipulated. This curious event, although related by Damiani, with all the particulars of the correspondence before the fight, the names of the champions, &c., in a book printed at Naples in the same year, 1503, and celebrated in a poem by Vida, who was also a contemporary, was overlooked, or at least disfigured by subsequent historians, until of late years, when the original narrative was found and reproduced by Bossi, *Istoria d' Italia*, Appendix to vol. xvii., as well as the MS. of Vida's poem, which was published under the title of *M. H. Vidæ, XIII. Pugilum Certamen*, Milan, 1818. It has also furnished the subject of an historical novel called *Ettore Fieramosca, o la Disfida di Barletta*, Milan, 1833. The cathedral of Barletta is a Gothic building, with a high steeple; the interior presents nothing striking, except some antient granite pillars brought from Canosa. Barletta is surrounded by an old wall, and has a citadel which commands the harbour. The population is reckoned at above 18,000 inhabitants. It is a thriving place, and one of the most pleasant provincial towns of the kingdom. It is frequented by Dalmatian traders, who cross the Adriatic in their small vessels.

BARLEY is a grain too generally known to require a minute description. It is readily distinguished from other grain by its pointed extremities, and by the rough appearance of its outer skin, which is the corolla of the flower closely enveloping the seed, and, in most varieties, adhering strongly to it.

Botanists place barley in the family of the *Gramineæ*, and Linnæus has classed it in the second order of his third class (*Triandria digynia*), having three stamina and two styles in the flower. For its botanical characters, see HORDEUM.

Barley, according to the most antient authors, formed a principal part of the food of man in the early ages, and continues to do so at this day, in many countries where the progress of agriculture and the increase of wealth have not yet enabled the inhabitants to exchange the coarser barley loaves for the more palatable and nutritious wheaten bread, and where the soil is not well adapted to rye, or the climate to maize.

Of all the cultivated grains, barley is perhaps that which comes to perfection in the greatest variety of climates, and is consequently found over the greatest extent of the habitable world. It bears the heat and drought of tropical regions, and ripens in the short summers of those which verge on the frigid zone. In genial climates, such as Egypt, Barbary, and the south of Spain, two crops of barley may be reaped in the same year, one in spring from seed sown the preceding autumn, and one in autumn from a spring sowing. This explains a passage in Exodus (ix. 31), where the effect of the hail is mentioned which desolated Egypt, in consequence of the refusal of Pharaoh to let the children of Israel depart: 'The flax and the barley were smitten, for the barley was in the ear, and the flax was bolled; but the wheat and the rye were not smitten, for they were not come up.' Commentators agree that this event happened in the month of March; the first crop of barley was therefore nearly ripe, and the flax ready to pull: but the wheat and the rye sown in spring were not yet sufficiently advanced in growth to be injured by the hail.

Agricultural writers in general have distinguished the different species of barley, either from the time of sowing them, into winter barley and spring barley, or, from the number of rows of grains in the ears, into six-rowed, four-rowed, and two-rowed, or flat barley. Another distinction may be made between those which have the corolla strongly adhering to the seed, and those in which it separates from it, leaving the seed naked, from which circumstance these are called *naked* barleys. Without entering into any discussion whether these differences are sufficient to constitute distinct species, or are to be considered as varieties produced by climate, soil, or cultivation, we shall only observe that those kinds which are hardier, and will bear the winters of our climate, may also with success be sown in spring, as is the case with the Scotch bere or bigg. There seem, in fact, to be only two very distinct species of barley generally cultivated: one which produces three perfect flowers, and as many seeds united at the base, at each joint of the *rachis*, or middle of the ear, alternately on each side (*fig.* 1), and another, in which the middle flowret is perfect, and the two others barren, forming a flat ear, with only one row of grains on each side, as our common spring barley (*fig.* 2). The first species has sometimes the middle flowret small or abortive, and consequently only four rows of grains, giving

Fig. 1.



a Winter barley.
b The same, with part of the seed pulled off the rachis.
c A side view of the last to show the shape of the rachis.
d The three perfect grains adhering together by the base, as pulled off the rachis.

Fig. 2.



a An ear of common spring barley.
b The same, with the grain partly pulled off.
d The single grain, with the remnant of the two abortive flowers.

the ear a square appearance, but that this is only an occasional deviation is proved by its returning to the perfect ear with six rows, in rich soils, and under proper cultivation.

In some varieties of both kinds the seeds stand more apart from each other, and at a greater angle with the rachis, the ear is also shorter, giving it the appearance of a bat or fan, whence it has been called Battledore Barley, it is also known by the name of Sprat Barley. In others the corolla separates from the seed when ripe, and the awns fall off: these are the naked barleys. Each of these has been in repute at different times, and is worthy of the attention and careful cultivation of the practical and experimental agriculturist.

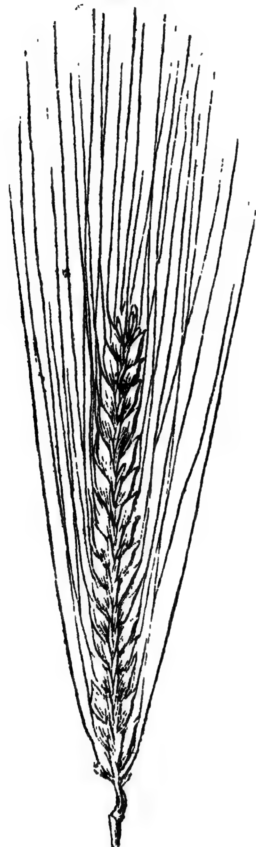
Winter barley is mostly sown in those countries where the winters are mild, and the springs dry, as in the south of France, Italy, and Spain or in those where the snow lies deep all the winter, and where the sun is powerful immediately after the melting of the snow in spring, as is the case in parts of Russia, Poland, and some parts of North America. In most climates, where the winter consists of alternate frost and thaws, and the early part of spring is usually wet, as is the case in England, Scotland, and Ireland, the young barley is too apt to suffer from these vicissitudes, and the spring-sown barley gives the more certain prospect of a good crop: but the grain of the latter is seldom so heavy as that which has stood the winter, and, being harvested later, it interferes with the wheat harvest, which is an inconvenience.

The winter-sown barley is generally of the six rowed sort, of which the bere or bigg is an inferior variety but being hardy, and of rapid growth, it is well suited to exposed situations and inferior soils. The *Siberian barley*, a variety of which, with naked seeds, has been highly extolled by foreign agricultural writers, especially by Thaer, under the name of *Hordeum cœleste*, seems to be a superior sort in rich soils, not only for its heavy and nutritious grain, in which particulars it is said to approach to the quality of rye, but also for its succulent stems and leaves, which make it by far the best sort to sow for the purpose of green food for cattle and sheep, and, if fed off early, the roots will, in a rich soil, shoot out an abundance of fresh stems, and produce a good crop of grain at harvest.

The barley most commonly cultivated in England is that which has only two rows. It is almost universally sown in spring. The varieties produced by difference of soil and cultivation, as well as by seed occasionally brought from other countries, are innumerable, they have been divided by most agricultural writers into the early or *rath ripe* sorts, as they were called, and the late ripe, from the period of their being fit to reap. But this is a distinction which is not very accurate. It is well known that hot gravelly soils bring any grain to perfection in less time than the stronger and colder soils, and that the produce acquires from the soil in which it grew a disposition to ripen earlier or later. This property it retains for a few seasons, by some modification of its vegetating power, to which, for want of a better name, that of *habit* may be given, being analogous to the alterations produced on living animals by habit. Thus seed sown repeatedly in a light dry soil becomes rath ripe, and that sown on the heavy moist land late ripe, although originally the same. The rath ripe grain is always less heavy than the late ripe, and from these circumstances the experienced cultivator of barley chooses his seed from such land as may modify the habit produced by his own, giving him a crop with as heavy a grain as his soil can produce, and within a convenient period.

The common or Norfolk spring barley, so called because it is the principal sort cultivated in that county, has a moderate-sized ear, containing from ten to fifteen seeds on each side on an average (*fig.* 2). The straw is not very long, and makes good fodder for cattle in winter. Some prefer the long-eared, which contains from twelve to twenty seeds in a row, but it has a weaker straw, and is subject to be beaten down by rains from the weight of the ear. Particular varieties have been in great repute at different times, when first introduced, and then seem to have degenerated and lost their superiority. Of this kind is the *Moldavian* barley. This barley was much sought after some years ago; and lately the *Chevalier* barley (*fig.* 3), so called from the gentleman who first brought it into notice. It is said that having observed an ear of barley in his field greatly superior to the rest, he carefully saved the seed, and cultivated it in his garden till he had a sufficient quantity to sow it in a field. It has since been

Fig. 3.



Chevalier Barley.

extremely multiplied and diffused through the country. Some eminent maltsters and brewers have declared, that it contains more saccharine matter than any other sort; and the trials hitherto made have convinced many agriculturists that it is not only heavier in the grain, but also more productive. In 1832 Mr. Coke of Norfolk, who is always foremost in all agricultural experiments and improvements, sowed a considerable portion of land with this barley, and the result is said to have been perfectly satisfactory. In the year 1833 the writer of this article sowed two acres of Chevalier barley in the same field with some of the best of the common barley. The soil was poor light sand, but in good order and very clean. The produce of the whole was nearly the same, four quarters per acre, but the Chevalier barley weighed 57 lbs. per bushel, while the common weighed only 52. This gives the farmer an advantage of nearly ten per cent. The sample was very fine, and the whole that he could spare was eagerly purchased by his neighbours for seed at his own price. It is long in the ear and very plump, and the plants tiller* so much, that half a bushel may be saved per acre in the seed. This is probably owing to its grains being all perfect, and vegetating rapidly. The straw, like that of the other long-eared barleys, appears weak in proportion to the ear; it is said also to be harder, and not so palatable to cattle. These are circumstances which experience alone can ascertain. That hitherto it has a decided superiority over the common sorts, no one who has tried it fairly in well-prepared land seems to deny; but unless great care be taken in cultivating picked parcels for seed, selecting the finest ears and plumpest grain, it will probably share the fate of its predecessors—degenerate, and lose its reputation. Might not the cultivation of the various kinds of grain purposely for seed be more generally practised, and form a distinct branch of agriculture? And would not this be well adapted to small occupiers and cottagers, who may have had allotments of land given or let to them, to enable them to live by their own labour and industry, without parochial aid? Thus the good qualities of any grain might be perpetuated, new varieties might be produced, and the defects corrected by cultivation, as is the case with horticultural plants.

* A plant is said to *tiller* when it produces several stems from the crown of the root (*fig.* 5, *a*) at the surface of the soil.

The Sprat or Battledore Barley (*fig.* 4), also called Putney Barley, from having been once extensively cultivated near

Fig. 4.



[Sprat (or Battledore) Barley.]

that place, is in much esteem in Germany. It is the *Hordeum Zeocriton*; also called *German rice*, or *rice barley*, not from any resemblance it bears to rice, but because, when deprived of its skin and made into pot barley, it swells by boiling, and makes a good substitute for rice in broths and puddings. It is not much cultivated in England at present, but it is hardy and productive, and grows well in stronger soils, especially the marly, and is well worth the attention of experimental agriculturists. It certainly was once in good repute in this country, and may suit particular soils and situations.

All kinds of barley require nearly the same soil, and whether they are sown before winter or in spring, the ground must be well prepared, and the soil pulverized by repeated ploughings and harrowings, or by the operation of those instruments which have been invented for this especial purpose; in order that the fibres of the roots, which are very minute and delicate, may penetrate the soil easily in search of nourishment.

The cultivation of all the varieties is nearly the same, and is best understood in the counties of Essex, Norfolk, and Suffolk, in which a great quantity of excellent barley is produced and malted for the London market. In the light soils, barley is invariably sown after turnips, which have been fed off the land by sheep, or been drawn to feed the cattle in winter in the yards or stalls, who, by means of an abundance of litter, make a vast supply of manure ready for the next turnip crop. When the land has been properly prepared for turnips [see TURNIPS], and well manured, and the turnips have been carefully hoed, so that no weeds of any kind remain, it is then in the finest state for barley as soon as the turnips are off. Turnips require a well pulverized soil, and so does barley. If the soil is very dry and light, the sheep folded upon it consolidate the surface by their treading, and enrich it by their urine and dung. As soon as a part of the field is cleared and the hurdles removed, the land is ploughed with a shallow furrow, and thus the sheep and the ploughs are often seen in the same field succeeding each other, that no time may be lost in turning in and covering the dung, which is very volatile, and would soon lose much of its qualities by the action of the sun and winds. This is sufficient preparation for the seed, which may now be sown or drilled without delay.

In heavier soils, which have become tenacious by the winter's rains, or on which the sheep have been folded in wet weather, the soil may not be in a sufficiently divided state to receive the seed with advantage. In that case it must be worked and stirred till a proper tilth is produced: this is a great loss and hinderance, by increasing the labour at the busy time of sowing, but it cannot be avoided; the experience and judgment of the cultivator must direct him as to the best mode of proceeding, ever bearing in mind that it is an irretrievable error to sow barley on land not properly pulverized, and that, if it is once fine and dry, a little delay in the sowing is of much less importance. It can scarcely be too dry on the surface at the time of sowing, at least in this climate, and, provided a few showers supply the moisture necessary to make it vegetate and spring up, there is no great danger to be apprehended from too dry weather. Barley has been known to grow and ripen, when not a single shower refreshed the soil from the day it was sown to that in which it was reaped.

When the soil is of a strong, compact nature, but fertile at the same time, and turnips cannot well be fed off the land, nor taken off in carts, on account of the damage which would be done to the soft moist soil in winter, by the tread of the sheep, or the wheels of the carts, recourse is sometimes had to a *long fallow* during eighteen months, from harvest till the second spring, giving the land the benefit of two winters' frosts, a tillage in autumn, in summer, and in two springs. Thus the land is perfectly cleaned, and, if properly managed, quite mellow and fine; and the barley sown on such land always produces a crop, not only abundant, but of the best quality, so that the lines of Virgil in his *Georgics*, i. 48, whether literally applicable or not, are verified in the result:—

> 'Illa seges demum votis respondet avari
> Agricolæ, bis quæ solem, bis frigora sensit.'

This practice has been alluded to in the article Arable Land, and is common in the heavier soils of Essex and Suffolk. The loss of time by so long a fallow is amply repaid by the state of the land and the subsequent crops. It was once the universal custom to sow wheat after a fallow, and barley after wheat, unless clover was sown with the wheat, which was the first step to improvement; but after the barley another fallow became necessary. By sowing barley after the fallow, the land is much more perfectly cleaned, and the clover sown with the barley is the best preparation for the wheat, which may be succeeded by beans, and, if these are well manured and properly hoed, another crop of wheat may be taken before a second fallow is necessary. By comparing the probable produce of the two different rotations, the advantage will be evident in favour of that which begins with barley.

In some particular cases, however, when a very dry autumn allows the wheat stubble to be ploughed and well cleaned before winter, and several ploughings and harrowings can be given in spring, barley may be sown with advantage after wheat; but then it is seldom advisable to sow clover and grass seeds with the barley, the land not being sufficiently free from weeds. But the *Trifolium incarnatum*, lately introduced from the south of France, if it should succeed well in our climate, would be admirably adapted to be sown on the barley stubble: the land being slightly ploughed or scarified immediately after harvest, and the seed rolled in. It will grow so rapidly in spring as to smother all seed weeds, and will give a heavy green crop to be cut for horses and cattle early in May, and excellent winter fodder if made into hay. [See Trifolium Incarnatum, and Clover.]

The quantity of barley sown formerly was four or five bushels per acre: but, if the land is duly prepared and the seed good, from two to three bushels is an ample allowance, especially if sown by the drilling machine, which it always ought to be; for if the land be too rough to allow of drilling, it is scarcely fit to sow barley in, and oats will be a more advantageous grain.

The proper time for sowing barley depends much on the season and the state of the land. The best practical rule is, to sow as soon after the middle of March as the ground is dry. Earlier sowings may sometimes succeed well, but in this climate, cold wet weather often prevails in the end of February and beginning of March, and this is by no means favourable to young plants of barley. The early-sown crops are however in general the heaviest, especially the sort which ripen later: they require less seed, having more time to tiller before the hot weather draws up the stems. There are, however, seasons when the later-sown crops are the best; a good rule is to sow a quick-growing sort when the sowing is unavoidably deferred, and in this case more seed must also be allowed.

The depth at which the seed should be deposited depends on the nature of the soil and on the season. Winter barley need only be slightly covered, and will tiller astonishingly in good light soils. The examination of two roots, one of which (*fig.* 5) proceeded from a grain dropped on the surface of the soil, and the other (*fig.* 6) buried one or two inches under the surface, clearly shows the difference. In the first, the crown (*a*), from which the stems tiller, has the seed still adhering to it; in the other they are separated by a strong tough ligament (*c*). This forms two distinct centres, from which the roots spread; and, in very light soils and dry seasons, the roots, springing immediately from the seed, are less exposed to be dried up. But in stiff soils the seed, buried deep, may have much difficulty in germinating, the air not having sufficient access, and the first shoot, which forms the ligament (*c*), not being able to pierce the compact soil above it. As a general rule, a depth of from one and a half to three inches, according to the nature of the soil, is most likely to enable the seed to sprout well, and give a sufficient hold of the land by the roots to avoid the danger of lodging. It is of consequence that all the seeds be deposited at a uniform depth, to ensure their shoots rising at the same time: for where some rise earlier and some later, it is impossible to reap the whole in good order; some of the ears will be too green, while others are shedding the seed from being too ripe. This is one reason why the drilled crops are, in general, so much more regular in their growth than the broadcast. After sowing barley it is useful to pass a light roller over the land, across the stitches, if there are any, to press the earth on the seed, and prevent too great evaporation of the moisture. When the plants begin to tiller, another rolling, and in some cases a slight harrowing, to loosen the surface and thin out the plants where they grow too close, is very useful. This also is the best time to sow clover and grass seeds, if not done with the first rolling. Barley is not usually hoed, because the land should be perfectly clear of weeds and their seeds, before it is sown; but if hoeing is thought necessary to loosen the



5. A root of self-sown barley in a rich light soil.
5* The same in a poor stiff soil.

soil, instead of merely harrowing it, the clover or grass-seeds are sown at the last hoeing. After this no attention

Fig. 6. *Fig.* 6.*



6. A root of drilled barley in a good soil.
6.* The same in a poor stiff soil.

is required to the crop till harvest, unless some docks or thistles should make their appearance, which must then be carefully pulled up.

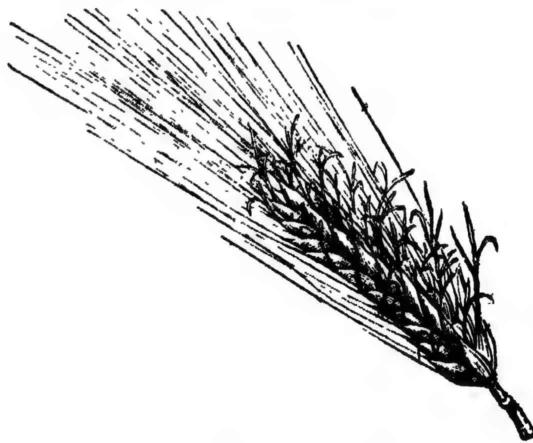
The practice of sowing clover, rye grass, or other seeds, with the barley, is almost universal, and is considered as one of the great modern improvements in agriculture. There is no doubt a great advantage in having a profitable and improving crop to succeed the barley, without further tillage; and clover prepares the land admirably for wheat. Still there are some doubts, whether this be profitable in all cases. There are seasons when the clover materially injures the barley by its luxuriance; and, in wet seasons at harvest, it is very difficult to dry the straw sufficiently, mixed as it is with the succulent stems of the clover, or to prevent its heating in the stack. The clover, as far as the barley is concerned, may be looked upon as a weed, which, like all other weeds, must take a part of the nourishment from the crop, and check its tillering. If the clover is sown late among the barley, the danger is less. It will not be able to grow so high as to do much injury, but the fear of losing the plant of clover makes most farmers prefer sowing it soon after the barley.

In Flanders, clover is seldom, or never, sown with barley, but chiefly with rye: but they sow a species of white carrot instead, on the sandy soils. These push out very little of the green top, but shoot their fibres downwards, which form the rudiments of the carrot. After harvest, the ground is well harrowed, and watered with liquid manure. The carrots, which could scarcely be observed above ground, soon spring up, and a good crop is secured before winter, extremely useful for feeding cattle and swine, and greatly increasing the urine of cows and bullocks, the favourite manure for light soils in that country.

As soon as the ears of the barley begin to droop and lose their purple hue, acquiring a light straw colour, before the grain is quite hard, it should be reaped. This is usually done by mowing it with a scythe, having a hoop, or an appendage called a *cradle*, fixed to it, so as to lay the swathe regularly: but where there is a sufficient supply of labourers, at reasonable wages, it is far more profitable to have it reaped with the sickle, or, what is better, with the *Haynault scythe*, a short, broad scythe used with one hand, while a light hook is held in the other to lay the straw even, so as to be readily tied up into sheaves. A little practice enables a man to reap twice as much corn in the same time with this instrument as with the reaping-hook. Binding into sheaves is a great advantage; much less corn is shed, which, in the common method of raking into heaps, often amounts to more than would fully sow the same extent of land. The sheaves set up on end are in less danger from the weather, and when the stack is built, all the ears may be laid inward and much grain saved, which, if on the outside, would soon be the prey of birds: smaller stacks may be made, and the danger of heating entirely avoided. The stacks should be built on frames, supported by stone or cast-iron pillars, with flat caps on them to keep out vermin; and, in large stacks, it is useful to have a kind of open cage in the middle, to allow the admission of air to the centre. This dries the grain better than a kiln, and when the stack is properly thatched with straw, the crop may be considered as safe till it is carried into the barn to be thrashed. [See HARVEST, and FARM.]

Barley requires care in thrashing, to break off all the awns close to the grain. A thrashing machine does not accomplish this perfectly by only once passing the straw through the rollers; it is consequently usually put through a second time, especially if it has not been tied into sheaves. It is often necessary, after the barley is thrashed, to effect this by another operation, which is called *hummeling*, for which purpose several different kinds of instruments are used. A simple one consists of a cylinder composed of small bars of iron, and placed on an axis, which is rolled backwards and forwards over the grain; or, where a thrashing machine is used, a plate of iron, perforated like a nutmeg-grater, is fixed to the inside of the drum in which the beaters revolve, and the awns are effectually broken off by this rough surface.

The diseases to which barley is subject while growing are those which attack all other grain—the smut, the burnt ear, blight, and mildew; but it is less liable to these than wheat. The greatest enemy is a wet harvest. It is so apt to germinate with the least continuance of moisture, that even before it is reaped, it often exhibits an ear in full vegetation, every grain having sprouted (see *fig.*). It is then of



[Premature germination of an ear of Barley.]

little value, and even when this is checked by dry weather or in the kiln, the grain is so impaired as to be fit only to feed fowls and pigs. A strong plant of clover, by keeping the wet longer about the barley, often contributes to increase this evil, as has been hinted before.

The principal use of barley in this country, and wherever the climate does not permit the vine to thrive, and no wine is made, is to convert it into malt for brewing and distilling. [See MALT.] The best and heaviest grain is chosen for this purpose, and, as it must have its germinating power unimpaired, the least discoloration, from rain or heating in the stack, renders it suspected, and consequently not so saleable. It is, however, still fit for being ground into meal, for feeding cattle and pigs, when it is not

used for human food; or it may be made into pot barley by the process of shelling. [See Barley, Pot and Pearl.]

The produce of barley, on land well prepared, is from 30 to 50 bushels, and more, per statute acre, weighing from 45 to 55 lbs. per bushel, according to the quality. It is said to contain 65 per cent of nutritive matter; wheat contains 78 per cent. A bushel of barley weighing 50 lbs. will therefore contain about 32 lbs of nutriment, while a bushel of wheat weighing 60 lbs contains 47 lbs. Good oats weighing 40 lbs contain about 24 lbs. of nutritive substance; so that the comparative value of wheat, barley, and oats, in feeding cattle, may be represented by 47, 32, and 24, the measure being the same. It is remarkable that, allowing some addition to wheat, as more generally used for human food, these numbers very nearly give the usual proportions between the prices of these grains. The experiments on which this calculation is founded were carefully made by Einhof, and confirmed, on a large scale, by Thaer, at his establishment at Mogelin, the account of the results being accurately kept.

On all good loamy soils barley is a more profitable crop than oats, and is supposed to exhaust the soil less. On stiff cold clays it does not thrive so well, and there oats are to be preferred. In some districts, where the best barley is grown, the farmers seldom sow oats, and many prefer buying them for their own use, with the additional expense of market and carriage. In Scotland, and some parts of the north of England, oats are in greater request, being the chief food of the labouring classes, and preferred by them to barley, except it be in the form of pot barley in their broths.

Barley in its green state, especially the Siberian winter barley, makes excellent spring food for milch cows, as is well known to the cow-keepers about London; it comes in early, and greatly increases the milk. It is also very good for horses, provided it be given sparingly at first, as it purges them; but after a little time, when the stomach becomes accustomed to it, it increases their flesh and condition wonderfully, and is much more wholesome than the usual spring physic, as it answers the purpose of gently clearing the intestines, without any risk of irritation. For sheep it is more nourishing than rye, and comes earlier when fed off quite close in April, it will spring up again, and, on good land, produce a fair crop of grain in August, but in general it is ploughed up as soon as it is fed off, and succeeded by spring tares or turnips.

Barley has always been considered as possessing medicinal virtues; decoctions of it have long been used for the sick, especially in all pulmonary complaints, and, with the addition of some vegetable acid, it is extremely grateful in fevers, allaying thirst, and giving such a degree of nourishment as is indispensable, without exciting the circulation.

M. Theodore de Saussure has carefully analyzed the ashes produced by burning barley and its straw, and we shall close this article with the result of his experiments (*Recherches Chimiques sur la Végétation*, Paris, 1804.)

The grain reduced to ashes *with its skin* gave, out of 100 parts, 18 of ashes, which contained:—

Potass	18
Phosphate of potass	9 2
Sulphate of potass	1 5
Muriate of potass	0 25
Earthy phosphates	32 5
Earthy carbonates	0
Silica	35 5
Metallic oxides	0 25
Loss	2 8
	100

1000 parts of the straw produced 42 of ashes, containing:—

Potass	16
Sulphate of potass	3 5
Muriate of potass	0 5
Earthy phosphates	7 75
Earthy carbonates	12·5
Silica	57
Metallic oxides	0·5
Loss	2 25
	100

These products no doubt vary in different soils; but the proportion of silica in the straw and in the skin of barley is remarkable. This barley grew in a chalky soil.

BARLEY-BREAK, a popular pastime of the reign of James I., allusions to which repeatedly occur in our old writers. It was played by six people, three of each sex, who were coupled by lot. A piece of ground was then chosen, and divided into three compartments, of which the middle one was called hell. It was the object of the couple condemned to this division, to catch the others who advanced from the two extremities, in which case a change of situation took place, and hell was filled by the couple who were excluded, by pre-occupation, from the other places. In this 'catching,' however, there was some difficulty, as, by the regulations of the game, the middle couple were not to separate before they had succeeded, while the others might break hands whenever they found themselves hard pressed. When all had been taken in turn, the last couple was said *to be in hell*, and the game ended.

Several poetical descriptions of this amusement are extant: one in *Barley breake, or a Warning for Wantons*, written by W. N. Gent, 4to Lond 1607; another in Sir Philip Sydney's *Arcadia*; and a third in Sir John Suckling's *Poems*, which has been quoted by Brand in his *Popular Antiquities*, vol ii p 278, and by Gifford in his *Notes to Massinger*.

Dr Jamieson, in his *Etymological Dictionary of the Scottish Language*, gives an account of this game as it is still used in the north of Scotland. He calls it 'a game generally played by young people in a corn-yard, hence called "Barla bracks about the stacks." One stack is fixed on as the dule or goal, and one person is appointed to catch the rest of the company, who run out from the dule. He does not leave it till they are all out of his sight. Then he sets off to catch them. Any one who is taken cannot run out again with his former associates, being accounted a prisoner, but is obliged to assist his captor in pursuing the rest. When all are taken, the game is finished, and he who was first taken is bound to act as catcher in the next game.' He adds, 'This innocent sport seems to be almost entirely forgotten in the south of Scotland, it is also falling into desuetude in the north.'

Nares, in his *Glossary*, 4to Lond 1822, says our very puerile game of *tag* seems to be derived from barley break; there was a tag or tig in the Yorkshire game of barley break as played within memory, the touch of the person called tag or tig made a prisoner.

(See Brand's *Popular Antiq* ut supra, Gifford's edit of Massinger's *Plays*, 8vo Lond 1805, vol i p 104, note; *British Bibliographer*, vol i p 66; Nares's *Glossary* in v.)

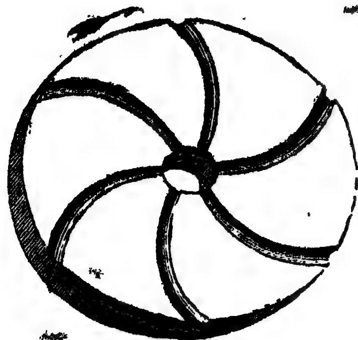
BARLEY, POT, is barley of which the outer husk or skin has been removed.

BARLEY, PEARL, is the small round kernel which remains after the skin and a considerable portion of the barley have been ground off.

Both these preparations of barley are made by means of mills constructed for the purpose, and differ only in the degree of grinding which the grain undergoes.

There are two kinds of mills for making pot and pearl-barley which we shall briefly describe. The mill, which was probably the earliest in use, and which is still common in parts of Germany and France, to take off the husk of the barley, is similar to a common flour mill, having two millstones, of which one is fixed and the other revolves horizontally over it; but these stones are of less diameters than common millstones, not exceeding three feet each. The upper stone has six grooves, in the form of the fourth part of a circle, cut in the lower surface from the centre to the circumference; the width and depth of these grooves increase from one inch in the centre to two inches at the circumference (see *fig*. 1.).

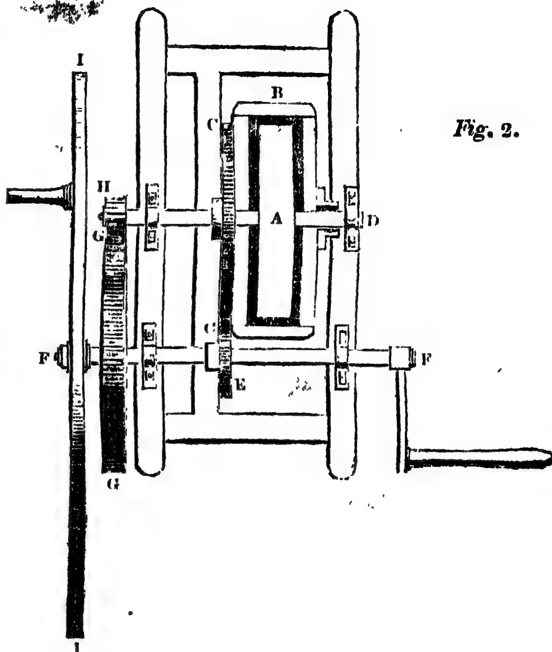
This stone has a perforation in the centre, as a common upper millstone, and revolves on a vertical axis or spindle of iron, the lower point of which moves in a metal cup fixed on an elastic horizontal beam. It is absolutely requisite that this axis be perfectly vertical, and the stones accurately horizontal, in order that the upper stone may move parallel to the lower, at such a distance as to rub the grain without crushing it. The mill is fed by a hopper through the central aperture, as in the common corn mill. The stones are surrounded by a circular case, leaving a space of from two to three inches between the circumferences. The top or flat part of this case is of wood and has an aperture corresponding with the central aperture of the upper stone; but the circumference consists of thin plates of iron perforated from the outside, by means of a flat punch, with holes, as near



each other as possible, making the inside of the case rough, like a nutmeg-grater. A square opening in this case, with a sliding door over it, serves to let out the barley after it has been sufficiently ground. In order to loosen the skin without rendering the substance of the grain too soft, the barley, which is chosen dry and hard, is sprinkled with water on the floor, and turned over two or three times in the course of eight or ten hours: it is then fit to be put into the mill. The upper stone is made to revolve from 200 to 300 times in a minute. The barley, gradually supplied from the hopper, is carried round in the grooves of the upper stone and rubbed on the under without being broken. The centrifugal force and the strong current of air produced by the grooves and the rapid motion, drive the grain, partially ground, against the rough case, and complete the removal of every part of the skin. It is then let out through the square opening, and falls on a sieve, which separates the naked grain from the bran. This is pot-barley. To make pearl-barley, the operation is continued till the required degree of fineness is produced. As the greater part of the finer particles of the barley ground off escape through the holes in the case, it is surrounded by another to collect this meal, or a cloth is fixed all round, which lets it fall gently in a bin below; thus nothing is lost. This meal is excellent food for cattle, pigs, or poultry. The great objection to mills of this construction is, that they require great nicety in the adjustment of the stones, and are very apt to waste the barley by grinding it unequally, and that, at all events, the larger grains are more ground than the smaller, but for pearl-barley, which ought to be of a uniform size, this is rather an advantage. But, on the other hand, the process goes on without interruption, and if two or more pairs of stones are placed under each other, the barley may pass from the first into the hopper of a second, and from this into a third, so as to come out of the last of any required degree of fineness. It may be observed, that the principal use of the upper stone and its grooves is to carry the barley round and throw it against the case, and therefore any hard wood, with similar grooves, will answer the purpose as well as stone; and this is said to be the construction of several of these mills. (See *Nouveau Cours complet d'Agriculture pratique*, Paris, 1829, article 'Orge perlée.')

The other kind of mill, which we shall now endeavour to describe, is in general use in Scotland, where most of the pot and pearl-barley used in this country are prepared. It was originally introduced from Holland, whence formerly all Europe was once supplied with pearl-barley, commonly called Dutch pearl-barley.

This mill consists of a common grindstone such as cutlers use, about three feet in diameter, revolving vertically on a horizontal axis. A case, similar to the one already described, revolves on the same axis, and in the same direction, with a slower motion. Sometimes the flat sides of this case, as well as the rim, or circumference, are composed of perforated plates of iron, but this is not absolutely necessary. The barley, prepared as before, is put in by a square opening in the circumference, the slide shut, and the machinery is set in motion, until the barley, tossed between the stone and the case by the double motion, has been entirely deprived of its skin, and is become pot-barley; or till it is ground into the small round shape of pearl-barley. The mill is then stopped, the slide pulled out, and the case being turned so as to have the opening undermost, the prepared barley falls out into the bag, or bin, placed to receive it. It scarcely wants any sifting, for such is the violence with which the grain has been tossed about, that all that is ground off is driven through the holes in the case, and is collected in a close chamber which surrounds the apparatus, as in the other mill. The mechanism by which the motions of the stone and case are produced is extremely simple, and will be easily understood by reference to a figure, which, although taken from a portable hand-mill for making pearl-barley, is on the same principle as the larger. This portable mill is made by Wilkinson, in Oxford-street, and may also be used for shelling rice.



[Horizontal section of the Pearl Barley Mill.]

A, section of the stone turned by the axis D. B, section of the case which turns on the axis D, by means of brass bushes in its centre.

C C, a wheel having sixty teeth, or cogs, fixed to the side of the case.

C E, a smaller wheel, or pinion, with fifteen teeth, moving the wheel C C, and fixed on the axis F F, by which the whole is moved.

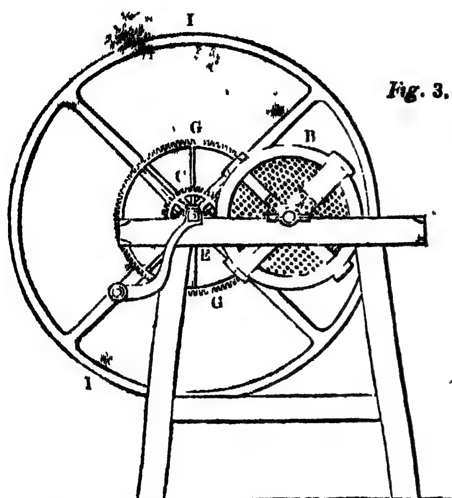
G G, a wheel with sixty teeth, on the axis F F, moving the pinion G H, which has twelve teeth, with the axis D D, which carries the stone.

I I, Fly-wheel, which equalizes the motion of the whole.

Thus by turning F F once round, the wheel C C and the case perform one quarter of a revolution, and G H with the stone, five revolutions: so that the stone makes twenty revolutions for one of the case; and if the axis F turns once in a second, the case turns fifteen times in a minute, and the stone 300 times. This is the usual velocity in large mills. A hand-mill may be moved with one-half or two-thirds of this velocity, the stone being also smaller. When the power is sufficient to turn a stone three feet in diameter 300 times in a minute, three bushels of barley may be converted into pot-barley in an hour, and into pearl-barley in two hours.

The advantages of the mill figured in the next page are considerable. It requires no very nice adjustment, and is not easily put out of order. The stone may continue in use, although considerably worn down, even to half its original diameter. There is no danger of crushing any of the grains, nor much waste; and whatever be the size of the grains it grinds them equally. If the pearl-barley is required very equal in size, it may easily be sorted by wire sieves, as the different sizes of shot are. The only defect of this construction is the loss of time and of power which it occasions, by the case being stopped to take out the prepared grain and replace it by fresh barley. Ingenuity will probably find means of removing this defect; but we are not aware of any late improvements in the construction of these mills.

Pot and pearl-barley are very wholesome and nutritious, and have a more agreeable taste than barley-meal; and it is to be regretted that they are not more used as food by the



[Hand Barley Mill, with the perforated plates on the case.]

labouring classes in England, as they are in Scotland, Germany, and Holland. The essential oil of barley, which gives it its peculiar taste, resides chiefly in the skin and adjacent parts of the grain; the interior is a purer farina, more nearly resembling that of wheat. This has probably suggested the idea of removing these outer parts, as less palatable, and given rise to the manufacture of pearl barley, the farina of which approaches nearer to pure fecula, or starch. This farina, obtained by grinding pearl-barley in a common mill, is sold under the name of patent barley, and used extensively for readily making barley-water for the sick. But if the essential oil of barley possesses any medicinal properties, it is evident, from what was observed before, that common pot-barley would be preferable for making a decoction of barley when prescribed as a remedy. The great use of pot and pearl-barley is in broths, stews, and puddings, as a substitute for rice. It swells, and has the property of uniting well with the fat and oily matters extracted from meat in boiling. Barley-broth is a constant and principal dish at every family dinner among the middling ranks in Scotland, and not despised by the higher. Even the bran, having been steeped in water, and allowed to ferment till it becomes acid, is relished by the lower orders in the mess called *sowens*. In Holland, pot-barley, boiled in butter-milk and sweetened with treacle, is a common mess for children and servants; and however unpalatable this may appear to some tastes, early habit and association make this, as well as the *sowens*, a kind of luxury to many.

BARLOW, JOEL, an American author and diplomatist. He was a boy at school when his father died, and the small portion of the patrimonial estate which fell to his share barely sufficed, with economy, to secure him the advantages of a liberal education. In 1771 he entered as a student at Yale College, Newhaven, where, in the course of the prescribed exercises in composition, he displayed such a taste for poetry and talent of versification, as procured him some reputation among his fellow students, and introduced him to the particular notice of Dr. Dwight, then a tutor in that college. Having gone through the usual course of study, Barlow, in 1778, took the degree of Bachelor of Arts; and on leaving college, at first applied himself to the study of the law, though it appears not with much ardour. Four of his brothers were in the revolutionary army, and he had himself, during the college vacations, been accustomed to join the army as a volunteer, in which character he was present at several skirmishes, and in one of the severest conflicts that happened during the war. These circumstances inclined him to listen favourably to the suggestion of some influential friends, who advised him to qualify himself for the office of a chaplain in the Massachussets line of the American army, and intimated to him that his examination in theology would be very indulgent. Accordingly, he applied with diligence to theological studies for about six weeks, at the end of which he was licensed to preach as a congregational minister, and immediately after repaired to the army. Barlow remained in this situation until the end of the war. In 1781 he married Miss Baldwin of Newhaven, and during the same period he occasionally occupied himself in the composition of patriotic songs and addresses, which, with those of Dr. Dwight and Colonel Humphreys, are considered to have had much effect in inspiriting the American soldiers. While in the situation of chaplain, he also planned and nearly accomplished his poem on the discovery and prospects of America.

When Great Britain acknowledged the independence of the United States, and the American forces were disbanded, in 1783, almost every one who had been in the army had either a new profession to seek, or an old one to resume. Barlow declined the duties of a parochial minister, and reverted to his original profession of the law. With this view he proceeded to Hartford, and there settled, as he then imagined, for life. But his habits of mind were not favourable to success at the bar, and he soon found it expedient to make some addition to his means of subsistence by the establishment of a weekly newspaper. He also employed himself in preparing for the press the poem to which we have alluded, *The Vision of Columbus*, which was published by subscription in 1787. This work not only extended his reputation in America, but made him known in Europe. It was re-published in London a few months after its appearance, and has since gone through a second edition in America and one in Paris. The reputation he had by this time acquired procured him a commission from the clergy of Connecticut to adapt Dr. Watts's version to the use of the New England churches, in which his improved version is in use at the present day. He then gave up his newspaper, and became a bookseller, in order to promote the sale of his *Psalms* and his *Vision of Columbus*: and when he had effected these objects he relinquished business, and returned to law and literature. But in 1788 Barlow was induced to abandon the law, in order to proceed to Europe as the agent of a company of speculators for the sale of certain extensive tracts of land on the Ohio river.

Barlow landed in England in 1788, and soon after crossed over to France, but he returned to England in 1791, with the intention of remaining for a year or two, and then returning to the United States. In the meantime he became much interested in the progress and prospects of the French Revolution, and formed an intimate acquaintance with the leaders of the republican party, particularly with those who afterwards belonged to the party termed 'Girondists.' During his stay in London Barlow formed also a close connexion with the large body of men, who at that time held republican and revolutionary principles, and among whom such a man was well calculated to acquire influence. In 1791 and 1792 he produced some political works which increased his reputation with his own party, and added something to his pecuniary resources. These were—*Advice to the Privileged Orders*; *The Conspiracy of Kings*, a poem of about four hundred lines, relating to the coalition of the continental sovereigns against France; *A Letter to the National Convention*; and *Royal Recollections*: all indicating rather more zeal than ability or discretion.

The return to America which Barlow contemplated was frustrated by his nomination, jointly with a person called Frost, to go over to France, and present to the National Convention an address from the association calling itself the 'Constitutional Society,' in London. He intended to be absent only three weeks, but in the meantime the fact that 'two fellows' had gone to France as the representatives of the British nation, was noticed in parliament in such a manner that Barlow did not consider it prudent to return to England. In France he was received with much respect; and, soon after his arrival, the rights of a citizen were conferred upon him. He then accompanied the deputation of the National Convention which was sent to Chambery to organize the newly-acquired territory of Savoy as a department of the republic. His stay there during the winter was marked by the publication of *A Letter to the People of Piedmont on the Advantages of the Revolution, and the Necessity of adopting its Principles in Italy*. This address was largely circulated in the French and Italian languages, and a translation from the former was printed in England without the author's knowledge. He also wrote at Chambery a mock-heroic poem in three cantos, entitled *Hasty Pudding*, which is described by some of his own countrymen as the happiest and most popular of his productions.

In the following three years of his residence at Paris, he made a translation of Volney's *Ruins*. He now began to perceive that his neutral position, and the extensive connexions which he had formed, might be turned to good account in commercial speculations, in which he embarked with such

success as ultimately enabled him to realise a considerable fortune, and to live in Paris with some degree of splendour. He was in that city in 1795, when he received from his own country the appointment of consul-general at Algiers, with instructions to proceed to Barbary, and conclude treaties with the several states for the purpose of procuring the liberation of such American citizens as were kept in slavery. In the face of much obstruction and danger, he accomplished this benevolent work, and then gave up his consulship and returned to Paris, where he resumed his commercial operations, and continued to reside till 1805, when, after an absence of seventeen years, he returned to his native country.

After his return, Barlow appears to have chiefly employed himself in altering his *Vision of Columbus* into the form in which, in the year 1808, it finally appeared under the title of *The Columbiad.* No expense was spared in the external preparation of this quarto volume, which was by far the most splendid that America had yet produced. In preparing this volume, however, Barlow committed a serious miscalculation. The cost of its production rendered it necessary to fix a price which the American market could not bear, and accordingly very few copies were sold; but the work was reprinted the year following in a less ambitious form, and about the same time it was republished in London. *The Columbiad* has not, however, attained the popularity and circulation which the original *Vision of Columbus* enjoyed; and in most respects it is immeasurably inferior to the poem with which it may best be compared—*The Lusiad* of Camoëns. In attempting an epic it is obvious that Barlow much over-rated his own powers: his poem is rather awkwardly planned and poorly executed, and replete with most inappropriate political declamation and philosophical discussion. After the publication of this his great work, Barlow employed himself in collecting materials for *A History of the United States*, a work which he had long contemplated. In the midst of these pursuits, the President Madison, who held him in high esteem, appointed him minister-plenipotentiary to the court of France. This appointment was warmly contested in the senate, but passed by a small majority, and, in the year 1811, Barlow once more embarked for Europe.

He landed at Cherbourg in September, 1812, and immediately proceeded to Paris, where, in the absence of Napoleon, he was received by the minister of foreign affairs, and immediately applied himself to the duties of his new station, particularly to the accomplishment of the specific object of his mission, which was to negotiate a treaty of commerce with France, and to obtain indemnity for former spoliations. In the progress of this affair, it became desirable that he should have a personal conference with the emperor, who had then commenced the Russian campaign of 1812. He therefore proceeded to join Napoleon at Wilna; but he was exposed to so much privation and hardship in his progress through countries wasted by contending armies, and in a most inclement season, that his strength was exhausted, and an inflammation of the lungs came on, under which he rapidly sunk into a state of extreme debility. He died on the 26th of December, 1812, at Zarnawica, a small village in the neighbourhood of Cracow, in the 58th year of his age. (*Public Characters*, 1806; *Biographie Nouvelle des Contemporains*, &c.)

BARLOWE, WILLIAM, died 1625; being then prebendary of Winchester, &c. He wrote the *Navigator's Supply*, 1597; *Magnetical Advertisement*, 1618; and a work against Dr. Ridley, who had criticised his last-mentioned work. This was entitled *A Brief Discovery, &c.*, 1618.

Barlowe is one of our earliest writers on the magnet: being contemporary with Gilbert, 1540—1603. [See MAGNETISM, &c.] We have principally mentioned him here to correct a mistake which appears in several places, to the effect that he wrote on the *phenomena* of magnetism before Gilbert. The work of the latter was first published in 1600. But Barlowe had previously treated on *magnetical* instruments in his *Navigator's Supply*, as is slightly mentioned by Gilbert, cap. i.

His writings procured him no celebrity on the continent, and we cannot find any mention of his name in any foreign author.

BARM. [See YEAST.]

BARMEN. There are two Bürgermasterships, or provincial districts of this name, in the Rhenish possessions of the Prussian crown; the one, situated in the circle of Jülich and province of Aix-la-Chapelle, contains three villages, and about 1400 inhabitants, of whom 1340 are Roman Catholics; the other, in the circle of Elberfeld and province of Düsseldorf, contains two towns, four villages, and about 25,000 inhabitants. The latter consists principally of the 'Valley of the Wipper,' otherwise Wupper, and extends for about five miles along both banks of that stream, between two ranges of hills running immediately eastwards of Elberfeld, and lying within a mile and a half of each other. Its area does not much exceed forty-two square miles, but the natural advantages of its soil and situation are so great, that it has become what may almost be termed a vast open town: the central part, where regular rows of houses have been built, where the seat of justice for the district is established, and in which there are two churches, as many schools, a deaf and dumb asylum, &c., is denominated 'Gemarke,' and contains about 700 houses, with a population of about 2800 souls. The Valley of the Wipper, which rose into note as the seat of manufacturing industry upon the close of the Seven Years' War, is studded in every direction with larger or smaller works, besides four churches, and about 1700 dwelling-houses. According to Restorff's enumeration in 1830, it then contained 1997 looms for the manufacture of cotton piece-goods, &c., 120 mills for spinning cotton thread and yarn, 1055 looms for the weaving of linens, tapes, &c., 360 for that of silks and ribbons, and 7 manufactories of velvets and velvet ribbons, besides 39 bleaching grounds, 50 dyeing works, 4 factories for the production of chemical preparations, and a variety of other works for the manufacture of woollen stuffs, metal and plated goods, ironware, soap, tobacco, earthenware, &c. The larger establishments, comprising factories, mills, and warehouses, were in the same year 211 in number; and the quantity of raw products and manufactured goods annually exported is estimated at between 150,000 and 160,000 cwt. The whole appearance of this busy region indicates successful enterprise, and many of the private residences would elsewhere be designated palaces. In manners and customs there is a striking resemblance between the people of Barmen and the Dutch, betwixt whom an active commercial intercourse has long subsisted; and the virtue of cleanliness is carried to such an extent, says Stein, (*Travels*, 1827, vol. ii., p. 230), that 'even untenanted apartments are washed twice a week.' An Exchange has been erected; and the Wipper has in this valley one stone and four wooden bridges across it. About nine-tenths of the inhabitants are of the Protestant religion, the remainder being almost wholly Roman Catholics. Within this bürgermastership is the town or large village of Wapperfeld, with a Protestant church, about 1700 inhabitants, and two annual fairs. Gemarke lies in 51° 16′ N. lat., and 7° 10′ E. long. (Restorff and Weiland.)

BARMOUTH, a small town of the county of Merioneth in the parish of Llan-aber in North Wales, 197 miles N.N.W. from London, and 8 miles S.W. from Dolgelly. It is situated near the mouth of the river Mowddach or Maw, whence it received the name of Abermaw, abbreviated into Bermaw, and corrupted by the English into Barmouth. The river at this place, flowing to the south of the town, forms two channels, between which is a small island called *Ynys Brawd*, or the Friar's Island. The port, which is the only one in the county, is formed by this island and the beach to the south. The entrance is difficult and dangerous, owing to shifting sands, and particularly two sand-banks, called the north and south bars, so that vessels of any burden can only get in or out at spring tides. Barmouth formerly carried on some considerable trade, particularly in woollens; and a number of small vessels, employed in the coasting trade, still belong to the port. However, its loss in trade seems to have been compensated by its having become a genteel watering-place, which, during the summer months, is frequented by many respectable families from Wales and the adjacent English counties. The bathing is perhaps as fine as can any where be found, but the accommodations in the town and on the beach are not of a very superior description. The promenade along the beach at low water is much admired, and the views of the distant mountains are striking. The town is principally situated on the sloping side of a very lofty rock, which shelters it on the eastern side. The houses, which are indifferently built, gradually rise above each other in successive terraces, so that the ground floor of one row is nearly on a level with the chimneys of those beneath them.

The communication between these terraces is carried on by a flight of steps. A street below is formed by a few houses built on the strand, inhabited chiefly by mariners and fishermen, and defended from the encroachments of the tides, which threaten to overwhelm them, by large hillocks of sand, rendered stationary by the spontaneous growth of the *Arundo arenaria* and *Elymus arenaria*, which, by their long creeping and ramified roots, keep it firm and tolerably compact. These houses are, however, subject to much annoyance from the sands drifted by the wind.

The petty sessions are held in this town, which has a market on Fridays, and fairs on Whit-Monday, the 7th of October, and the 21st of November. In the *Population Returns* of 1831 no separate return is made for Barmouth; but its parish of Llan-aber contained 228 inhabited houses, with a population of 1148, of whom 846 were females.

(Bingley's *North Wales*; *Beauties of England and Wales*, vol. xvii.; Carlisle's *Topographical Dictionary of Wales*, &c.)

BARN, a building in which agricultural produce is stored, to protect it from the weather, and keep it in safety. In all countries where the climate does not permit the corn to be thrashed in the field and immediately put into a granary, it is necessary to protect it from the weather; and the most obvious method is to have capacious buildings for that purpose. Accordingly all well appointed farms have one or more of these buildings, which formerly were made of such dimensions as to be capable of containing the whole produce of the farm, whether hay, corn or straw. A great saving has been effected, by the mode of stacking hay and corn in the open air protected only by a slight covering of thatch. In consequence of this improved practice modern barns are made of smaller dimensions, and their principal use is to contain the corn in the straw which is intended to be thrashed out immediately; so that if the barn is capable of containing a thrashing floor, and as much corn in the sheaf as is usually put in a single stack, it answers all the purposes of a larger barn, and thus the expense of the farm buildings is greatly diminished.

The shape and construction of a common barn are too well known to require a particular description; we shall therefore only give some idea of the improvements which have been made on the common plan, and of some peculiar buildings, which are extremely useful, and not so generally known.

The principal use of a barn in our climate being to thrash the corn in, its construction must be adapted to the mode in which that operation is performed. As many smaller seeds, such as clover and the grasses, cannot so well be thrashed by a machine, a floor, upon which they may be thrashed with the flail, is an indispensable appendage to a farm; and the barn is the most convenient place to have it in. This floor is commonly placed in the middle, with its length equal to the width of the barn. It also allows the waggons or carts, when loaded with the produce of the harvest, or of the corn taken from a stack, to be drawn over it, and unloaded immediately in the barn. For this purpose large double gates are placed at each end of the floor, of such dimensions as to allow a loaded waggon to be drawn in on one side and when unloaded, taken out at the other. When the width of the barn is not sufficient for the length of the floor, a porch is added on one side or both, and in these the gates are placed. Those parts of the barn which are on each side of the thrashing floor are called the bays, and in these the corn is placed till it is thrashed. When there are porches, the roof of the barn is generally brought down to the line of the porch, and thus convenient sheds are formed on each side. One of the defects of this construction is, that the drawing of loaded waggons on the floor materially injures it, even where the precaution is taken of spreading straw over it. In consequence of this, many barns have been constructed without the large gates, and the corn is thrown from the waggon outside, through an opening called a *pitch hole*, into the barn. This has the inconvenience of loss of time, and the risk of damaging the corn in showery weather. The best plan, therefore, is to have a passage for the waggons under the roof, at the end of the barn, where they can with ease and safety be unloaded; and if a thrashing machine is used, a floor raised about seven feet above the ground will contain the machine at one end, and the unthrashed corn at the other: the lower part may be appropriated to various useful purposes; that part which is immediately under the machine receives the corn and straw after they are separated, and contains the winnowing machine. (See *Fig.* 1.)

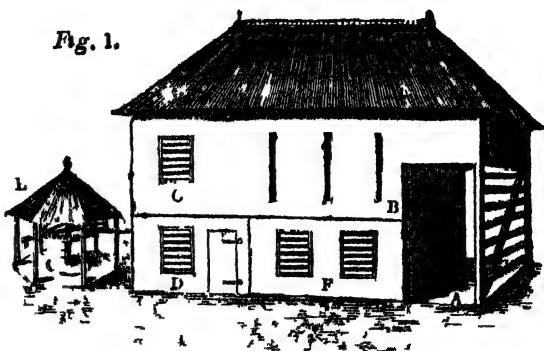


Fig. 1.

A, the place for unloading the corn; B, a floor seven feet from the ground, on which the corn in the straw is stored; C, the place of the thrashing-machine at the end of the floor; D, a chamber under the floor, into which the thrashed corn and the straw fall, and the corn is winnowed; F the shed for the horses to work under; F, a place under the floor, in which agricultural implements are kept: it may be converted into a stable. Double gates at each end of A will shut the whole up, or the end B may be closed by a partition with double doors in it. The windows are latticed.

In this case the seeds may be thrashed on the raised floor, which must be made strong and well jointed, to prevent the dust beating through, and steadied by pillars or a partition below. In small farms, where there is no thrashing machine, this construction is not so advantageous, the raised floor being unnecessary; still it would be better not to draw the waggons on the floor. The thrashing floor may be placed at one end of the barn, the waggons unloaded at the other, and the corn deposited between them.

A common thrashing floor is usually from eighteen to twenty feet long, and from twelve to fourteen wide: the size must depend on the number of men who thrash at the same time; this operation being more rapidly performed by three or four men beating in regular time, than if they worked separately. The labourers generally prefer working singly, but if they are paid according to the quantity thrashed out they are wrong. The ancient mode of cleaning corn, by winnowing it with the shovel and the fan, (see Isaiah, c. 30, v. 24) is still very generally practised, and requires a great length of floor; but the winnowing machine with skreens and riddles has now generally superseded this method.

Thrashing floors are usually made of stone, brick, oak, or tempered earth. The first are the most durable, and where stone can be obtained at a reasonable price, they are in the end the cheapest; but they are apt to bruise the corn, and on that account are not so generally adopted. Brick floors have the same inconvenience, besides that of readily imbibing moisture, and making the grain feel cold and damp, which diminishes the value of the sample. Earthen floors, when carefully laid, and the materials well incorporated, are both cheap and durable, provided the soil on which they are laid is dry naturally, or made so artificially. The following is the manner in which they are constructed. The soil is taken out to the depth of six or eight inches, or more, and if the subsoil is of a moist nature, a layer of gravel and dry sand is laid on the bottom three or four inches thick, and trod smooth and level. A mixture is made of clay, or loam and sand, with water, to the consistency of common building mortar, to which is added some chalk, or pounded shells, or gypsum, where these can be obtained; chaff, cow-dung, and some bullock's blood are added, and the whole is well worked up together: of this a coat is laid on the prepared bottom with a trowel, about an inch thick, and spread evenly. This is allowed to dry: another coat is then put over, and all the cracks carefully filled up. This is repeated till the desired thickness is produced. When it begins to harden, the whole is well rammed with a heavy wooden rammer, and every crack filled up, so as to give it the appearance of a uniform solid body. This is left to harden

slowly, neither exposed to the rays of the sun, nor to draughts of air, and in a short time the floor becomes sufficiently hard to be used. It is advisable, however, to give it some months to consolidate entirely. The best time for laying such a floor is in spring, that it may be completely hardened before the succeeding winter. It will last many years, if not exposed to frost and damp. But earthen floors have always the inconvenience of wearing into dust of a gritty nature, which mixing with the corn deteriorates it, and renders it less fit to be ground into fine flour. Hence, in spite of the first cost and frequent repairs, oaken floors are generally preferred, and few floors are now laid of any other materials. Some nicety is required in laying oaken floors, that they may not be subject to rapid decay, owing to the confinement of moist air below them. The planks should be two inches and a half thick, the edges well joined by *dowelling*, or *ploughing and tonguing*; *dowells* are oaken pins of half an inch diameter, and six inches long, driven three inches deep into holes of the same diameter in the edge of the planks, and received into corresponding holes in the adjoining planks, so as to keep them close together, and their surfaces even; ploughing and tonguing is done by means of a groove in each edge, into which a slip of lath is driven, half in each groove. This produces the same effect of joining the planks close, besides completely preventing any dust from passing between the joints. The planks are driven close by means of wedges, and are laid on oaken sleepers, to which they are fastened by a few iron spikes driven into each, and which rest on a foundation of brick work, so that the floor is eight or ten inches from the ground. This interval has been sometimes filled up with stones or gravel under the idea of preventing the nestling of rats; but this is not a good practice. A free current of air under the floor is the only method of securing it from damp and consequent dry rot. This should be provided by means of openings through the walls, or under the sills; iron gratings will keep out the rats; but even should they find their way under the floor they must be hunted out and destroyed by dogs and ferrets. By laying barn floors in this manner, beech, elm or deal planks may be used instead of oak, and will last many years.

The outer walls of barns are built of stone or brick, or consist only of wooden frames and quarterings covered with boards painted or tarred over.

Where timber is scarce, and neither stone nor bricks can be readily obtained, barns are frequently built with walls of earth, either raised by successive layers or strata, of tempered earth mixed with chopped straw, or like the composition used for thrashing-floors—(described above)—or of dry earth rammed hard in a frame of boards two feet wide, which in the south of France is called *pisé*. These walls, if properly constructed, and covered with a coat of fine mortar, or gypsum, will last a very long time; the only danger is the influence of damp and frost upon them; the roof should consequently project considerably beyond the walls.

The roof of a barn should be constructed according to the approved rules of carpentry, so as to produce the greatest strength, with the smallest quantity of timber. This is a point seldom attended to by country carpenters, who imitate the old roofs, in which strong beams resting on the walls horizontally, generally bear the whole weight of the roof, without regard to the advantage gained by proper trussing. Even in the most temporary shed, the strength may be greatly increased by using the materials judiciously. The covering of a barn may be of slate, tiles, or thatch. If tiles are used, they should be laid in coarse hay, to prevent the snow driving through in winter; this is better than mortar, which requires continual repairs. The most common covering is thatched straw, which has the great inconvenience of affording shelter for rats, who soon nestle in it, and are not easily driven out. The best covering, where it can be procured, is one of reeds, which, when properly laid, will last many years, and in which, from their hard and brittle nature, the vermin can make no lodgment: nothing is a better protection from the weather.

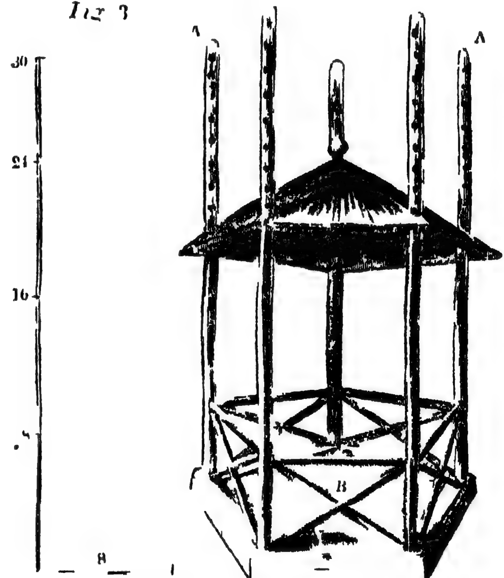
The more the air circulates, the better the corn is preserved. Barns should therefore have numerous windows or openings, and the corn, when put into them, should not be pressed down close to the walls, as is recommended in many agricultural works, but so placed as to allow the air to circulate freely. In this manner it will keep well, without acquiring that close and musty smell, which so much deteriorates corn which has been long kept in a barn.

Hay is now seldom put into a close barn, experience having shown that it keeps much better in the open air in ricks. But where a considerable quantity of hay is tied up in trusses for the market, it is extremely useful to have a building with a roof to protect them from the wet, and to load the carts under shelter. For this purpose a kind of barn is contrived, which some call a *Dutch barn*, but which may very properly be called a *skeleton barn*, being the frame of a barn without the boarding. The annexed figure will convey a better idea of it than any description. The opening in the middle admits a waggon or cart, to be loaded with trusses, which are deposited on each side. At the time of hay making this barn is extremely useful to draw a load of hay in suddenly on the appearance of a shower, and hay put into either side will be preserved as well as in a stack. But for this purpose another building is in use in Holland, to which the name of Dutch Barn is more appropriate, and of which we also annex a figure. This consists of a roof supported by strong poles like masts, A A, on which it can be raised or lowered at will. The usual form is that of a pentagon; the poles are at the angles and kept upright by means of a strong sill on a brick foundation, and pieces, B, acting as spurs, framed into the poles. The roof is light and covered with thatch. At each angle is a strong block of wood, with a round hole in it sufficient to let the poles pass through; these blocks are kept at any desired height by means of iron pins passed through holes made in the poles, and on which the blocks rest. To raise the roof a small jack is used, an instrument well known by its use in raising heavy waggons when the wheels are taken off. This is placed on an iron pin at some distance below the roof, and the corners are raised gradually, one after the other, at opposite angles, the pins being moved each time one hole higher.* The chief use of this Dutch barn is to contain

Fig. 2.



Fig. 3.



* This mode of raising and depressing the roof appears rude, but it is expeditiously done. The French have invented a *grenier à toit mobile*, in which the roof rises by means of a screw in the centre, but it does not answer so well.

hay, which may be placed in safety, in any small quantity, as soon as made, the roof being raised as the quantity increases, and gradually lowered as it is taken off for the cattle, which is always from the top. In small dairy farms in Holland this building is found so useful that few are without one.

BARNABAS, ST., though not of the number of the twelve chosen by our Saviour, is nevertheless styled an apostle by the primitive fathers, as well as by St. Luke, to whom that portion of the Scriptures called the 'Acts of the Apostles' is ascribed. (*Acts* xiv. 14.) Barnabas's divine vocation, and the share he took in the apostolic labours, obtained him this title. From St. Luke also we learn (*Acts* iv. 36) that he was by descent a Levite of the country of Cyprus, then largely inhabited by Jews, and that his first name was Joses, or Joseph. He received that of Barnabas (meaning 'the son of consolation') from the apostles, as appropriate to his character for pre-eminence in works of charity. The *Laudatio S. Barnabæ Apostoli*, by Alexander, a monk of Cyprus, says that his parents brought him in his youth to Jerusalem, to Gamaliel, by whom he was instructed in the law and prophets with St. Paul. (See also Baronii *Annal.* ad ann. xxxiv.) There is at least probability in this, as he was the person to whom St. Paul applied, shortly after his conversion, to introduce him to the Society of the Apostles.

The first mention of Barnabas in Scripture is in one of the passages already quoted, where (*Acts* iv. 34) it is related that the primitive converts at Jerusalem lived in common, and that as many as were owners of lands or houses sold them, and brought the price, and laid it at the apostles' feet: on which occasion, with the exception of Ananias (in the next chapter), no one is particularly mentioned but Barnabas.

Barnabas afterwards preached the gospel in different parts, together with St. Paul (*Acts* xv. 36); but upon a dissension about the person who was to accompany them in a journey which they proposed to the churches of Asia, which they had planted, they separated from each other: Barnabas went with Mark (the person about whom the dispute originated) to Cyprus; and Paul went with Silas to Cilicia.

What became of Barnabas after this, or whither he went, is uncertain. Indeed little is known of him, besides what is said in the New Testament, except that some antient writers have supposed him to be one of Christ's seventy disciples, whom he employed in preaching in the land of Judæa, in his own lifetime on earth.

The manner of Barnabas's death is also uncertain. Alexander the monk, already quoted, says he was stoned to death at the instigation of certain Jews who came from Syria to Salamis; but Baronius (*Annal.* ann. li. num. 51) acknowledges that he could meet with no authority for this in any antient author. Nor do Eusebius or St. Jerome, where they expressly treat of this holy man, so much as once give him the title of martyr.

There is still extant an epistle ascribed to St. Barnabas, consisting of two parts. The first is an exhortation and argument to constancy in the belief and profession of the Christian doctrine; particularly the simplicity of it, without the rites of the Jewish law. The second part contains moral instructions. This epistle was written in Greek; but Lardner says, that the first four chapters, or sections, and a part of the fifth, are wanting in the Greek copies. It is, however, entire in an antient Latin version. Archbishop Wake has printed a translation of it. In this epistle there is no express mention of any book of the New Testament; but there is a text or two of the New Testament in it, with a mark of quotation prefixed; and the words of several other texts are applied. From one passage it seems evident that the Temple of Jerusalem was destroyed at the time of writing it. Lardner thinks that this epistle is probably by Barnabas, but certainly antient, and written about A.D. 71 or 72.

St. Chrysostom (*Homil.* ii. in *Coloss.*) speaks of Barnabas as alive A.D. 63.

(See, besides the different passages in the New Testament, the *Acta S. Barnabæ Apostoli*, die xi Junii, in the *Acta Sanctorum, Junii*, fol. Antv. 1698, p. 421-453; Lardner's *Works*, 8vo. Lond. 1788, vol. ii. p. 11-22; Alban Butler's *Lives of the Saints*, 8vo. Dubl. 1780, vol. vi. p. 162-171; Archbishop Wake's *Genuine Epistles of the Apostolical Fathers*, 8vo. Lond. 1710, p. 61-79; with 'The Catholick Epistle of Barnabas,' ibid. part ii. p. 159-195.)

It was pretended that the remains of St. Barnabas were found in the year 478 at Salamis, with a copy of the Gospel of St. Matthew laid upon his breast, written with his own hand, and which Theodorus Lector says was sent to the Emperor Zeno in 485. The supposed remains were said afterwards to have been transferred to Milan, where he had preached. But other churches, besides Milan, boasted of possessing his relics. Compare the *Acta Sanctorum, Junii*, p. 449-459.

BARNACLE. [See BERNICLE.]

BARNARD, SIR JOHN, a merchant of considerable eminence in the City of London, was born at Reading in Berkshire in 1685. His parents being of the sect called Quakers, he was educated in a school at Wandsworth in Surrey, under a teacher of that persuasion. Being always of a very serious and inquiring turn, he early gave his attention to religious subjects, and seeing occasion to differ from the tenets and discipline in which he had been brought up, he conformed, in his nineteenth year, to the Church of England, and was baptized at Fulham by Dr. Compton, then Bishop of London. He ever afterwards continued a zealous member of the established church.

Previously to the event just mentioned, and when only fifteen years of age, young Barnard was taken into the counting-house of his father, who was a considerable wine-merchant in London, and such were his assiduity and aptitude for business, that the principal management of the concern was soon intrusted to him. When thus engaged, he must have given strong evidence of his talents; for the wine-merchants of London conceiving that their interests would be injuriously affected by the provisions of a bill which had passed the Commons and was depending in the Lords, petitioned the latter house on the subject, and made choice of Mr. Barnard to argue the case on their behalf; a task which he accomplished with so much ability and success, that the bill was withdrawn. At this time Mr. Barnard was thirty-six years of age.

A dissolution of parliament occurred in the following year, when several of his fellow-citizens, recollecting the talent which he had recently displayed, proposed his being put in nomination as one of the candidates for the City, those present at the meeting undertaking to canvass for him. Out of six candidates, Mr. Barnard was second on the poll, and he continued to represent the City in parliament during nearly forty years. From his first election he constantly took an active part in the debates, and owing to his knowledge upon commercial and financial questions, proved a very useful member of parliament: he generally voted with the party opposed to the administration of Sir Robert Walpole. A bill having been introduced in 1730 by that minister to prevent any subject of Great Britain from advancing money by way of loan to foreign princes or states, without license first being obtained from his majesty, Mr. Barnard opposed the measure, on the grounds that it would render Holland the mart of money to the nations of the Continent, that it would prevent the English merchants residing in Portugal from prosecuting a very profitable business, that of granting temporary loans to the king of Portugal, and that the clauses of the bill which went to compel the discovery on oath of loans to foreign princes would convert the Court of Exchequer into a court of inquisition. In consequence of this opposition the bill was greatly modified before it passed into a law.

In 1732 Mr. Barnard, who four years before had been elected an alderman of London, received the honour of knighthood on presenting an address to the king congratulating him on his return from Germany. In 1737 Sir John Barnard served the office of lord mayor of London, and in the same year brought forward a plan for reducing the interest of the national debt. The market-rate of interest in England was at that time so low, that the public securities, which bore an interest of only three per cent., were above par, and Sir John in consequence brought in a bill to enable his majesty to raise money by the sale of annuities, or by borrowing, at an interest not exceeding three per cent. The sum so raised was to be applied to the redemption of the South Sea Annuities, allowing a preference of subscription to the holders of those annuities. At that time the whole of the permanent debt of the country amounted to a little more than forty-six millions, of which sum twelve millions and a half were due to the Bank and East India Company: the measure proposed by Sir John Barnard was defeated by the minister proposing to include in its operation the whole

of the public creditors, a proposal which was deemed so chimerical, that the supporters of the bill gave up their object, and the measure was lost. It is somewhat curious to observe the strides that have since been made in this country with regard to financial operations. We have seen in one year (1815) fifty millions added to our national debt, and on each of two more recent occasions (1822 and 1830) the minister has been enabled to effect a reduction of interest upon more than 150 millions of annuities; whereas in 1727 it was found impracticable to conduct a similar operation in regard to forty-six millions of debt.

In 1745, during the rebellion in Scotland, public credit received a severe shock, and so much distrust was shown towards the Bank of England, that the most serious consequences to that establishment were apprehended. In this crisis Sir John Barnard came forward and procured signatures from most of the leading merchants of London to an agreement, binding themselves to receive the notes of the Bank of England in payment of all debts and bills, and thus the evil was averted. In 1758 Sir John retired from public life, and on that occasion received a vote of thanks from his fellow-citizens for his long and various services. He lived for six years in retirement, and died at Clapham on the 29th August, 1764, in the 80th year of his age: he was buried at Mortlake.

The gratitude of his fellow-citizens for his unremitted exertions in their service was not limited to the simple expression of their thanks, but was shown by their placing his statue, during his lifetime, in the Royal Exchange. At his death the inscription 'Humani Generis Decus' was placed on the base of the statue. Sir John Barnard was characterized through life by inflexible integrity, by sound judgment, and by uncommon strength of intellect.

BARNARD CASTLE, otherwise called CASTLE BARNARD, a market-town in the parish of Gainsford in the county of Durham, 246 miles N.N.W. of London, and 23 miles S.W. of Durham, is situated on the southern acclivity of an eminence which rises with a steep ascent from the left or northern bank of the river Tees. The town derived its name and chief consequence, if not its origin, from a castle which was erected on the summit of a rock on the west side of the town by Bernard Baliol, son of Guy Baliol, one of the followers of William I. The forests of Teesdale and Marwood, and the rich lordships of Middleton and Gainsford, with all their royal franchises, liberties, and immunities, were granted by the Conqueror to Guy Baliol. The whole district under consideration appears to have been originally called Marwood, which also seems to have been the name of a town about half a mile from the castle, of which there are now no other traces than an old building, said to have been the church, but lately used as a barn. One of the descendants of Guy Baliol was John Baliol, king of Scotland, who was born at Castle Barnard, and founded a hospital there which survived the Dissolution, and still furnishes a scanty provision for three aged women. In his time the lordship passed from the family by forfeiture, and was claimed by Beke, bishop of Durham, as belonging to his palatinate; but the king (Edward I.), to humble this proud prelate, ultimately took the palatinate from him, and when it was restored to the see of Durham it was without the important additions which it had gained by the forfeitures of Baliol and Bruce. The king gave the castle and its liberties to Beauchamp, Earl of Warwick, from whose heirs it passed to the Nevilles, and ultimately came into the hands of Richard III. by right of his wife, Anne Neville, the daughter of the 'king-making' Earl of Warwick. Richard appears to have done much for the improvement of the place; the boar, his cognizance, still exists in several parts of the town and castle; and in many cases figures in relief of boars passant, taken from the castle, are fixed in the houses. It thus came into the possession of the crown, from which the castle, houses, parish-lands, and privileges were ultimately purchased by an ancestor of the Duke of Cleveland, who is the present proprietor.

The existing remains of this castle cover six acres and three-quarters. The parts of chief strength stand on the brink of a steep rock, on the north-east corner of the principal area, commanding a most beautiful prospect up the river. The walls, which are in various degrees of preservation, seem to have been erected at different epochs, and with their apertures, bastions, and buttresses, together with a large circular tower, which stands on a cliff one hundred feet perpendicular above the river, are in parts mantled with ivy, and as contrasted with the brown rocks, fringed with brushwood, on which they stand, and the river at the base, form an object of great picturesque effect. Indeed, the environs of the castle are altogether remarkably beautiful, the vale of the Tees abounding with romantic landscapes. The outer area of Barnard Castle is now used as a pasture for sheep, and the other parts inclosed by the walls have long been converted into orchard grounds.

Leland, who visited it in the reign of Henry VIII., speaks of the town of Barnard Castle as 'a meatly praty toun, having a good market, and meatley welle buildid,' a description which very well applies to it now. It extends about a mile in length, and consists of several streets, the principal of which is very wide, and for the most part lined with good modern houses built with stone. It possesses one of the best corn-markets in the north of England; but the market cross and shambles are very inconveniently situated, being in the middle of the way. The market cross itself is an octangular freestone building, open at the sides for public accommodation. The church, or rather chapel of ease, dedicated to St. Mary, is in the form of a cross, with a detached tower, which was originally surmounted by a lofty spire, but that, having become ruinous, was removed about fifty years since, and the tower itself was raised sixty feet higher than it was before. This tower contains four bells, one of which has an inscription around the rim in the Saxon character, which would seem to denote its being one of the oldest bells in the country. The inscription merely declares the dedication of the bell to the Trinity and all the saints. The living is a perpetual curacy, of which the vicar of Gainsford is patron. It is of the certified value of 30*l.* 9*s.*, but the annual value is 130*l.*, according to parliamentary returns. The local government is administered by a steward and jury of the manor of Darlington. The inhabitants are employed to a considerable extent in the manufacture of Scotch camlets, and in the stocking and tanning business, which last produces a leather highly esteemed in the manufacture of white leather breeches. The market is on Wednesdays, and there are fairs on Easter Monday, Wednesday in Whitsun week, St. James's day, and one on July 25th for horses, cattle, and sheep. The chapelry of Barnard Castle contains 513 houses, and the population in 1831 was 4430, of whom 2332 were females.

On account of the paramount authority of the bishop in the palatinate of Durham, not only the county, but all the towns, were exempted from the burden, as it was then considered, of sending members to parliament, until the reign of King James I., when the inhabitants began to think they had a right to representatives. The question was first considered in parliament in 1614: but, owing to the opposition of the bishop, nothing was decided until 1621, when, with the concurrence of Bishop Morton, the county, the city, and Barnard Castle were allowed two members each. Fourteen members for the whole county had been claimed in the first instance.

(Surtees' *History and Antiquities of the County Palatine of Durham*; Hutchinson's *History and Antiquities of the County Palatine of Durham*; Gough: Camden's *Britannia*; *Beauties of England and Wales*, vol. v.)

BARNAUL, BARNAULSKOI ZAVOD, a considerable mining town of Siberia, in the district of Busk and circle of Tomsk, which are comprised in the government of Tobolsk. It lies on the banks of the Barnaulska, an inconsiderable river, not far from its influx into the Oby, and contains about 8000 inhabitants (inclusive of about 100 German dealers and their families, who have a Lutheran church and school in the town), nearly 1200 houses, and three Greek churches. The most remarkable edifices in Barnaul, besides the churches, are the chancery offices for the mines, the commandant's residence, the stores and barracks, and the public mart, all built of wood. It is the seat of administration for the whole of the mines of the Kolyvan line, including the silver mines of the Oby, and the various mines of the Altai and Ural ranges.

Independently of the lead mines in the vicinity of Barnaul itself, large quantities of that metal are smelted here from the Zmejevskaja-Gora, or Schlangenberg mines, and also all silver ores which contain any particles of gold. Its yearly produce, on which between 5000 and 6000 hands are employed, is estimated at 22 poods (about 10,560 ounces) of gold, and 1000 poods (or about 480,000 ounces) of silver; and it is stated by a native writer, that, during fifteen years, the whole of this produce has amounted to 150,000 ounces

of gold, extracted from 5,000,000 ounces of silver, and 4 320 000 ounces of refined silver, principally from the Schlangenberg mines These metals when purified, are despatched to St Petersburgh during the winter There are lime pits, a bell foundry, two tile manufactories, and glass works, in or near the town and amongst its works are 30 smelting furnaces and a mint for copper coin Most species of vegetables, even melons and artichokes, thrive in its vicinity, but the water is of indifferent quality The number of shafts opened and worked in this quarter is 32 Barnaul is situated in 53° 20′ N lat and 83° 26′ E long Not far from it are the Altai mountains**

BARNES, JOSHUA, celebrated for his attempts in poetry history, and criticism, was born in London in the year 1654 He was educated at Christ's Hospital, and afterwards went to Emmanuel College, Cambridge Although we do not agree with Dr Monk in thinking that 'as a poet historian, orator, and critic he was *equally* unfortunate' (*Life of Bentley*, p 40) it must be allowed that but for his amusing self complacency, and the gossip arising from his peculiarities the man and his works would have been long ago forgotten except so far as he is connected with the biography of his great contemporary the Master of Trinity As a poet he is ridiculous and nothing can be conceived more ludicrous than the certainty with which, in his notes on Euripides he appeals to his own absurd paraphrase of Esther as the standard of poetry and Greek style His *History of Edward the Third* would be considered even now a creditable performance, if we had not ceased to look upon diligence and erudition as the only necessary qualifications of an historian as a compilation there is little to object to in it but its prolixity, and, we doubt not, it has been the unnoticed book of reference of many writers on the period which it embraces Dr Salter, in a note in Bowyer's edition of Bentley's *Diss on Phal* p 141 says of Barnes's scholarship 'Barnes had some knowledge in the Greek language, about as much as Dr B used to say as an Athenian cobbler, but was in all other respects a very poor creature indeed *Felicis memoriae* as the burlesque epitaph upon him says, *expectans judicium*' We would rather compare him for knowledge of Greek to a Byzantine grammarian, and it is a curious proof of his skill in imitating the style of the scholiasts that his interpolation of the argument to the Bacchae of Euripides has imposed upon two of the acutest of the continental philologers (See Welcker *Tril*, p 327, et seq Boeckh *Trag Gr Princip* p 300) The incidents of his life are uninteresting he was elected Regius Professor of Greek at Cambridge in the year 1695, in 1700 he married Mrs Mason of Hemingford a widow lady with a good jointure a large part of which he devoted to the publication of his Homer in 1710 in 1711 he wrote to Harley three letters which are preserved in the Harleian Collection (Br M 7523), praying for preferment but in vain He died in 1712 His widow erected a monument to his memory at Hemingford The following is a pretty complete list of his numerous writings

1 Sacred Poems, 1669 2 The Life of Oliver Cromwell the Tyrant an English poem 1670 3 Xerxes and other dramatic pieces in English and Latin, also some translations from Seneca 4 A Latin poem on the Fire of London and the Plague 5 A Latin Elegy on the beheading of St John the Baptist 6 Αὐλικοκατοπτρον sive Esther e Historia Poetica Paraphrasi Lond 1679, 8vo 7 Select Discourses Lond 1680 12mo 8 The History of Edward the Third, Camb 1686 88, fol 9 An edition of Euripides, 1694 fol 10 A Sermon on Matt ix 9, 1703 fol 11 An edition of Anacreon, 1705, 8vo 12 An edition of Homer, 1711 2 vols 4to

BARNET, commonly called CHIPPING BARNET, to distinguish it from East Barnet, is a market town of Hertfordshire, in the hundred of Cashio It is situated on the great north road, eleven miles N N W of London, upon an elevated site on which account it is sometimes called High Barnet The parish of the same name, in which it stands, contains about 1410 acres In the time of the Saxons this site was occupied by a thick and large wood, which was granted to the church of St Alban's by the name of the woods of Southaw, Borham, and Hurehoge In subsequent grants confirming the former, the place is frequently named Bergnet, which signifies, in the Saxon language, 'a small hill;' and in still later times it received the adjunct of Chipping in consequence of the market which the abbots of St. Alban obtained leave of Henry II to establish in the town, and which in time became a large cattle market Barnet is a small town, but in consequence of being a great thoroughfare, has a busy appearance. It has no buildings besides the church and grammar-school that require particular notice The church, which is dedicated to John the Baptist, was built about the year 1400, at the expense of John Moot, abbot of St. Alban's, as a chapel of ease to East Barnet. It consists of a chancel, nave, and two aisles, separated by clustered columns and pointed arches At the west end, the church has a square embattled tower The church is served by a curate, appointed by the rector of East Barnet, who is himself nominated by the crown, and the living is valued in the king's books at 22*l* 2*s* 8½*d* The free school was founded by Queen Elizabeth in 1573, who erected a brick building for the purpose, with apartments for a master and usher, and endowed it with a house worth 7*l* a-year other benefactors have since increased this endowment The school is managed by twenty four governors, who appoint the master and usher The terms of the foundation require that nine children belonging to the parish should be educated gratis, and any others on payment of 5*s* a quarter Another school was endowed in 1725 under the will of Mrs Elizabeth Allen, who left lands for the purpose of providing a school-house and paying a master to teach all the children of Barnet, of both sexes, 'to read the Bible and cast accounts' The town possesses two endowed alms houses, one for six poor and aged widows or maidens, and the other for the same number of aged widows The government of the town is administered by a magistrate, high constable, and subordinate officers and a court leet is held at Easter The market is held on Monday and there are fairs on the 8th of April and 4th of September, the latter being principally for the sale of cattle The number of houses in Barnet is 306 and the inhabitants were 2369 in 1831, of whom 1183 were females This statement exhibits an increase of 614 persons since the former census which is attributed in the population return to the inclosure of a common

A spring of mineral water of a mild purgative quality, was discovered upon Barnet Common in 1652 it was for a time in much repute but we cannot learn that it is much in use at present On Gladsmore Heath in this neighbourhood, was fought, on April 14 1471 the decisive battle between the Yorkists and Lancastrians, which is known as the battle of Barnet The forces of York were headed by Edward IV, and those of Lancaster by Neville, Earl of Warwick (the king maker) who with many of the nobility and a great number of common men perished on the field This event has been commemorated by an obelisk, erected in the year 1740 by Sir Jeremy Sambrook, on the spot where the road divides towards Hatfield and St Alban's

(Chauncey's *Historical Antiquities of Hertfordshire*, Lysons *Environs of London*, &c)

BARNEVELDT, JOHAN VAN OLDEN, was born at Amersfoort in the province of Utrecht, in 1547. In his *Apology*, in which he enters somewhat minutely into the history of his life, he boasts of being descended, both on the father's and mother's side, 'from an antient and noble stock, who for more than a century were leading members of the provincial assemblies, and distinguished by their zeal in the cause of national independence' In 1564 he went to the Hague to prosecute the studies of an advocate. After spending five years in the study of the law, and, according to the fashion of the times, of divinity, between Heidelberg and the Hague, he settled as an advocate in the latter place in 1569 His talents being of the first order, his practice soon became considerable he was appointed one of the advocates of the Court, and in 1576 was chosen counsellor and pensionary of Rotterdam which honours, due allowance being made for the difference between the political condition of the two countries, may be considered as similar in kind to those of king's counsel and member of the House of Commons in England In 1575 Barneveldt married a lady who did honour to his choice, though he himself declared that he was at the time much more influenced by the amount of her property than her virtues an avowal which, taken with other parts of his conduct, tends strongly to substantiate the accusation of his enemies, that his character was not free from the taint of avarice It is evident, however, from the manner in which Barneveldt puts forward this unworthy declaration respecting his marriage, that he was persuaded it was not calculated to lessen him in the eyes of his countrymen. (See his *Apology*.)

While the struggle between the Netherlands and Philip II. was at its height, Barneveldt, who was early distinguished for his patriotic ardour and impatience of the yoke of Spain, did not let either his advocate's gown or his habits as a civilian prevent him from occasionally discharging the duties of a soldier. In 1573 he assisted as a volunteer at the memorable siege of Haarlem, and was only prevented by illness from taking part in the still more memorable siege of Leyden in 1575. But it is in his civil capacity that we should seek for the services which Barneveldt rendered his country during its eventful struggle.

In 1585 the prospects of the United Provinces were most disheartening. They had just lost their leader William of Orange, to whose firmness, calm sagacity, and unconquerable zeal for his country's welfare they were mainly indebted for their honourable position in the eyes of Europe. William fell by the hand of an assassin on the 10th of July in the preceding year. The Spanish arms, directed by the Prince of Parma, were almost everywhere triumphant, and it appeared hopeless to continue the struggle without the aid of foreign powers. Under these circumstances the States-General opened negotiations with France and England, from whom they had received promises of assistance. From the commencement of the struggle the inhabitants of the Netherlands were anxious for a monarchical form of government, and it became a matter of deliberation whether the sovereignty of the new state should be offered to a member of the royal family of France or to the Queen of England. It is curious to remark that the objection to Elizabeth was founded on the barbarous policy pursued by the English government in Ireland. (See Grotius, *Annal.*, lib. iv.) Ambassadors were sent by the States to the French and English Courts. Henry III. was too much engaged with the war of religious factions which then distracted his own kingdom, to aid the insurgents, and accordingly referred them to the good offices of the Queen of England. On the 29th of June, 1585, a deputation headed by Barneveldt, made a formal offer of the sovereignty of the revolted provinces to Elizabeth on their knees, beseeching her to accept the people of the Netherlands for her subjects. Elizabeth refused the proffered sovereignty, but entered into a treaty, by which she bound herself to aid them with 5000 foot and 1000 horse, advancing at the same time a considerable sum of money, to be repaid at the end of the war.

Unfortunately for the success of this armament, and the honour of the English arms, Elizabeth intrusted it to the command of Dudley, Earl of Leicester. Barneveldt saw from the beginning that Leicester was totally unworthy of the important trusts confided to him, and promptly used his influence with the States to limit his real powers, while he professed to regard his nominal authority as supreme. By his advice, and with a view to control Leicester's military authority, Prince Maurice, the son of William of Orange, then but nineteen years of age, was raised to the dignity of Stadtholder, Captain general, and Admiral of Holland and Zealand; and he contrived it so that though Leicester was, according to the treaty of alliance with Elizabeth, a member of the Council of State, he had no share in the proceedings of that more select council, consisting of the chief magistrates, in whom, by his advice, the government of the Netherlands was actually vested. Barneveldt remonstrated with Leicester, upon the part of the State, for his misgovernment, appealing to their violated privileges, ruined finances, and to the neglected discipline of his army, for proofs of oppression and incapacity. Leicester was indignant at being thus held responsible for his conduct to saucy burghers and traders, and angrily dissolved the Assembly of the States for presuming to meddle with measures beyond their province. The States, by Barneveldt's advice, continued their sittings. Leicester then employed menaces, promises, and concessions, and endeavoured to ingratiate himself with the Calvinistic preachers and the populace. He succeeded in the latter, but the States maintained a dogged independence, fearful however of offending their royal protectress by an overt act of hostility to her favourite. Leicester continued to treat the Netherlands as a conquered province, till at length the long-cherished feelings of friendship on the part of its inhabitants towards the English nation were changed to distrust or hatred. A remark of Grotius in reference to these transactions strikingly evinces the impression generated in the Netherlands by Leicester's conduct. 'An Englishman,' says he, 'obeys like a slave and governs like a tyrant, while the Belgian knows how to serve and command with equal moderation.' Having reason to suspect Leicester of treacherous designs against the State, and of having arranged a plot for seizing the persons of Barneveldt, his chief adversary, and of Prince Maurice, his rival in rank and pretensions to the sovereignty, the States at length solicited Elizabeth to recall him, and succeeded.

Barneveldt boasts that he alone opposed Leicester's mischievous presumption, and that in consequence he was rewarded by his inveterate hatred. He was at the time the first civil officer of the commonwealth, having been promoted to the office of Advocate General of Holland and West Friesland, on his return from his embassy to England. The duties of this office are thus defined by him:—'To have a priority in all matters, and to defend the sovereignty and right of the state and the communities of our country; to have the care of calling public assemblies; to take charge of remonstrances and petitions, to consult and deliberate with the nobles concerning them and all other things; at the meetings to pronounce the wish of the majority, and to strengthen the same with allegations and reasons as should be most fit; afterwards to demand the suffrages of the cities, to conclude by most voices, and to labour with his utmost ability to carry the decision of the majority into execution.' Barneveldt tells us that he accepted this high office with great reluctance. Affairs were at the time in great confusion, the finances of the provinces were at the lowest ebb, and, as he urged upon the State, his own fortune was unequal to maintain the rank and dignity of his station in a manner calculated to command the respect of foreigners. He was not, however, long at the head of affairs before order was restored, trade revived and the monied resources of the State were improved. Having succeeded in restoring order and prosperity, he resigned his office in 1592; but the States were unanimous in soliciting him not to abandon a post of difficulty, which he alone was competent to fill. They strengthened their appeal to his patriotism by increasing the salary of the office. Barneveldt continued to conduct the affairs of the state till the year before his death, with signal ability and integrity. 'I know M. Barneveldt well,' wrote Secretary Winwood to Carleton, the English Ambassador at the Hague, 'and know that he hath great power and abilities, and it must be confessed, that never hath man done more faithful and powerful service to his country than he.' From 1592 his public conduct becomes essentially part of the History of the United Provinces.

In 1603 the States-General despatched an embassy to England, nominally to congratulate James I. on his accession, but in reality to prevent his concluding a treaty of peace with Spain. This embassy was on a scale of unusual splendour, and was composed of Prince Frederick of Nassau, brother of Maurice the Stadtholder, Barneveldt the Grand Pensionary, and Valck and Brederode, two of the first dignitaries of the republic. The conduct of the embassy was trusted to the sagacity and experience of Barneveldt. No ordinary address and perseverance were required to overcome the feelings which James entertained towards men whom he did not hesitate to denounce as rebels. It jarred so much with James's high notion of the royal authority to countenance men in arms against their king, that he could not be prevailed upon to give the ambassadors a formal audience. Fortunately for Barneveldt in this embarrassment, the celebrated Duke of Sully, then M. de Rosny, arrived as ambassador from his master, Henry IV. Barneveldt and Sully had many conferences, the particulars of which are detailed with much minuteness by Sully. (See *Mémoires de Sully*, tome ii.) As it was the interest of France that the Netherlands should not be restored to the King of Spain, Barneveldt had not much difficulty in persuading the French ambassador to use his influence at the English court in favour of the revolted provinces. The result of these negotiations was, that James attached his signature to a treaty drawn up by Sully, which bound the kings of France and England to aid the States by a secret advance of money, to be followed up by actual hostilities against the Spanish king if he should resent this clandestine assistance. Barneveldt failed, however, to persuade either monarch to send an army to aid the brave defenders of Ostend, then in the third year of its memorable siege. (See Grotius's celebrated Prosopopœia of Ostend in his Latin poems.) The important share which Barneveldt had in these negotiations, and the high estimation in which he was

held by Henry IV. and his ambassador, are attested by the large space which the latter devotes to their conferences and the minuteness with which he details them to his master. Sully never mentions the name of the other members of the embassy. The same remark may be made by anticipation as to the despatches of Sir Dudley Carleton, when ambassador from James to the Hague from 1616 to 1628. Barneveldt's name occurs in every page as holding in his hands all the authority of the state, and every rumour touching his health and conduct is minutely reported

The truce of twelve years between Spain and the United provinces, signed on the 9th of April, 1609, which was effected almost entirely through the influence and firmness of Barneveldt, exposed him to unworthy suspicions. He had to contend with the national hatred of Spain, and the religious prejudices of the Protestant inhabitants, who regarded every overture of peace as a wily artifice of popery; and what added still more to the difficulties of his task, he was vehemently opposed by the army and the military authorities, guided by Prince Maurice, the Stadtholder. Every artifice of delay and misrepresentation was resorted to with a view to holding up the advocates of the truce with Spain as traitors to the cause of national independence. Though Barneveldt had been the means of extorting from the Spanish court a recognition of the independence of the United Provinces as a preliminary condition to all negotiation, he was denounced as one who had received bribes from that court for the purpose of establishing the Spanish yoke and the Catholic faith: and so strong was the popular delusion, and so fierce the opposition of Prince Maurice, that Barneveldt, at one period of the negotiation, resigned his office of Grand Pensionary in order to avert the calamities of a civil war. At the solicitation, however, of the States-General, he resumed his office, and, strongly supported by the ambassadors of France and England, overcame all difficulties after a struggle of two years, and the truce of twelve years was concluded.

The great services which William of Orange, the father of Maurice, had rendered to the cause of independence, induced the States General to invest him with almost supreme authority. His son, a bold and ambitious prince, of great military capacity, bred up in camps and in habits of command, succeeded to the same authority, but it soon became manifest that, unless the ascendancy of the laws were firmly established, the great struggle in which the nation had been so long engaged against Spain would end in a mere change of masters. Hence the nation was divided into two great opposing parties—the war and the peace party; the contest, in fact, of the civil power with the military between Maurice the Stadtholder and Commander-in-Chief, and Barneveldt the Grand Pensionary. Unfortunately for the issue of this struggle, fanaticism, under the name of religion, became an element of the contest. All the wars and intestine broils, indeed, of the sixteenth century were more or less mixed up with sectarian controversy. Though the progress of the Reformation led to measures favourable to civil liberty, religious liberty was the growth of institutions and habits of thought which found no favour in the eyes of the leaders of the secession from the Church of Rome, many of whom, both in theory and practice, were far from tolerant. This was particularly the case in those countries (the Netherlands, for example) in which the change in religion was effected in opposition to the civil magistrate. Barneveldt had early braved the prejudices of the Calvinistic clergy and the multitude, by his efforts to procure liberty of conscience throughout the provinces, and by his open protection of Arminius, in the controversy between that divine and his antagonist Gomar. The mild and tolerant doctrines of Arminius respecting church government recommended them to Barneveldt, though his own views with reference to predestination, grace, and free will, the great points of the Arminian controversy, were much more akin to those of the Gomarists. Prince Maurice, on the other hand, lent all his aid to the latter, knowing that they were the more numerous and powerful party, counting them by their voices in the States-General, though there is every reason to suppose that he was in belief an Arminian.

The main strength of the party which Barneveldt headed lay in the provincial States of Holland, and in those patrician families from whom the magistrates of the towns were selected. Their weakness, and the cause of their failure, lay in the system of self-election of those magistrates. The election of the corporate officers was originally in the burghers at large; but during the confusion of the great struggle, it was found convenient to invest the magistrates with the power of filling up vacancies in their own number. This irregularity was unfortunately retained when the necessity which first called it into existence had ceased; and the result was, that, no longer connected with the people by election, the aristocratical families received no fresh infusions of popular strength, and, as a consequence, had no hold on the attachment of the community at large.

It is not necessary to detail the steps by which Maurice of Nassau, after a struggle of ten years, triumphed over Barneveldt and the States, and usurped the sovereign power. The army was ardently devoted to him, and the ignorance of the populace, and the fierce intolerance of the Calvinistic preachers, powerfully ministered to his ambition. Every artifice of fraud and misrepresentation was employed to hold up the patriot party to popular odium, as the enemies of the religion and independence of their country. As the truce of twelve years was mainly owing to the firmness and sagacity of Barneveldt, he was denounced by Maurice's party as one who had sold himself and country to Spain and popery: and as he had openly espoused the tolerant doctrines of Arminius, he was denounced by the Calvinist preachers as leagued with the Catholic monarch in his designs against the Protestant worship. Still, however, the weight of his character, his eloquence, and the undeniable benefits which followed from his administration, enabled him to keep his ground against all the attacks and stratagems of his adversaries. In 1616 Barneveldt's influence was increased by his having obtained from James I. the restoration of the Cautionary Towns, which had been given up to Elizabeth as securities for the money which she had lent the States by the treaty of 1585. The debt due at the time by the United Provinces to England amounted to 8,000,000 florins, but Barneveldt, by adroitly taking advantage of James's necessities and avarice, had the debt cancelled by a prompt payment of about one-third of the amount. This was not the only advantage which accrued to the States from the transaction. James was at that time intent upon his Spanish alliance; and it was to be apprehended, that, if a marriage between Prince Charles and the Infanta took place, these towns would be handed over to Spain.

It was about this time that Prince Maurice endeavoured to win the consent of Barneveldt to his assuming the sovereignty of the republic. For this purpose he sent his step mother, the celebrated Louisa de Coligny, to sound him as to his feelings, but that princess, instead of seducing Barneveldt from his duty to his country, was so convinced by his arguments of the danger of such a measure, that she laboured to divert Maurice from his purpose. Thus baffled and exposed, he sought to remove Barneveldt, the great obstacle to his ambition. Unfortunately, at this critical moment, the wounded vanity and vindictive pedantry of James I arrayed themselves on the side of Maurice against the Grand Pensionary.

James, who prided himself on authorcraft as much as kingcraft, had a few years before published a work in which he denounced the heresies, as he deemed them, of Vorstius, a celebrated divine, who had succeeded to the chair and opinions of Arminius at Leyden. The States, counselled by Barneveldt, gave a civil but evasive answer to a letter of James, with which he accompanied a copy of his book, and in which he points out burning as the proper punishment for such a damnable heretic. (See the substance of James's Letter from the *Mercure François* in Bayle, art. Vorstius) James's literary vanity and royal arrogance took fire at this disrespectful conduct; and having learnt from his ambassador that Barneveldt was the individual who had guided the States on the occasion, he lent his rival Maurice every assistance in his power towards effecting his destruction. Whatever doubts may be raised as to the cause of James's interference, it is certain that he did all in his power to ruin Barneveldt.

The question upon which the great struggle between Barneveldt and the Stadtholder finally turned was the calling a national synod, to which the point at issue between the Arminians and the Gomarites should be referred. Barneveldt was well aware of the object which those who clamoured for this assembly had in view; he opposed it with all his influence, as a project fraught with danger to internal peace and the interests of true religion; and would probably have succeeded in defeating it altogether, but for the

intrigues of Carleton, the English ambassador. The point at issue between Barneveldt and his opponents was simply whether any other form of religion should be tolerated in the States save that of the Church of Geneva. Barneveldt contended, that as the War of Independence did not originate in religion, but in hostility to the political oppression of Spain, in which even the Catholics were as eager as the Protestant inhabitants, each state should be at liberty to choose its own form of worship. He appealed to the declarations and conduct of William, the late Stadtholder, who, to the last, had openly tolerated all forms of worship, not excluding the Catholic. His opponents, on the other hand, maintained that, by the act of union of the revolted provinces, the Calvinistic religion was declared to be the national religion of the new State. Barneveldt, however, induced the States of Holland and Utrecht to act upon his views, and moreover to issue a proclamation, in which a veto over the appointment of the clergy was asserted by the civil magistrate. Great disturbances followed this declaration in some of the states: Barneveldt called upon Maurice, as the commander of the military force, to aid the civil authorities in suppressing them; but Maurice encouraged the confusion, and the Arminians were everywhere assaulted and persecuted.

In this embarrassment Barneveldt formed a militia, composed of the citizens, in Arnhem, Leyden, and Utrecht: this body was called by the Dutch name of Waartgelders. Maurice immediately marched his army against the militia, disarmed them, took possession of the Arminian towns, deposed the Arminian magistrates, and openly assumed absolute authority. The States-General, overawed by his boldness, nd jealous of the fame and influence of Barneveldt, ratified all his proceedings, and at his bidding took decisive steps towards summoning a national synod, November 13, 1618. (See Dort, Synod of.) Previous to this, Barneveldt and his friends Grotius and Hoogerbeets had been arrested (February 21, 1618) by the States-General, acting under Maurice. This bold step induced the state of Holland, which had at first opposed the Synod, to consent, under the influence of fear and the violent measures of Maurice.

The trial soon followed. 'Whatever becomes of the other prisoners,' writes Carleton, the English ambassador, who openly avowed that his master approved of Maurice's proceedings, 'Barneveldt is sure to lose his head.' Such seems also to have been Barneveldt's conviction, all his efforts being directed to save his family from the consequence of this punishment. He expressed no regret at his own fate, except so far as it might implicate his friends; and was particularly concerned for Grotius, then in the prime of life, and, like himself, devoted to his country's welfare. The trial of the prisoners commenced on the 19th of November, 1618. It was in vain that Barneveldt protested against the illegality of the whole proceedings, and that he triumphantly refuted all the charges urged against him: he was found guilty, among other things, for 'having brought the church of God into trouble,' and sentenced to death. It was deemed, however, expedient not to carry the sentence into effect till it had received the sanction of the decision of the Synod, which then held its sittings. The Synod closed its sittings on the 9th of May, 1619, with a denunciation of all those who had opposed the Calvinist clergy. On the 14th of May Barneveldt was beheaded on a scaffold erected in the court-yard of the Hague, meeting his fate with that calm courage which attended him throughout life. As he bowed his head to the axe, he exclaimed, '*O God! what is man?*'—(Cerisier, v. 384.) A letter which he wrote the night before his execution to his wife is still preserved, and is a touching monument of his firmness and affection.

Of the charges brought against Barneveldt (see Burigny, i. 141), many were frivolous, and most of them vague. The charge of treason was, on the face of it, as ill-grounded as the rest; but party spirit at that time ran so high, that it is perhaps difficult to extract the truth with perfect accuracy from the conflicting statements of that period. (See the opposite opinions of Triglandius and Uitenbogart as to Barneveldt's character and the justice of his execution, given in Brandt's *History*, iii. p. 370.) There is no doubt that the arrest of Barneveldt was a violation of the sovereignty of the state of Holland; he was also tried by a court of commissioners named by his enemies, and one whose jurisdiction over him he fairly denied. Grotius, in his own case, protested as strongly as Barneveldt against the competency of the court. The more intimate connexion between these two illustrious men, who were involved in similar charges, did not commence till 1613, when Grotius was chosen Pensionary of Rotterdam. [See Grotius.]

The state of Holland, which at first protested against the illegal arrest of Barneveldt, at last came to a disgraceful compromise, and thus sacrificed one of the greatest and best of its citizens.

(Cerisier, *Tableau de l'Histoire Générale des Provinces Unies*; Auberry du Maurier, *Mémoires pour servir à l'Histoire de la République des Provinces Unies, contenant les Vies du Prince d'Orange, de Barneveldt, &c. &c.* Du Maurier's father was ambasador from France at the Hague, and was the intimate friend of Barneveldt. - Brandt's *History of the Reformation in the Low Countries*, translated from the Dutch; London; 4 vols. fol. 1720.—Burigny, *Vie de Grotius*; 2 vols. 1752.—*Sententia lata et pronuntiata adversus Joannem ab Olden Barneveldt, &c., Maii* 13, 1619. This sentence was published by the States-General in justification of their conduct towards Barneveldt.—The *Apology* has appeared in an English translation from the Latin of Peter Holder, a Calvinistic preacher, a bitter enemy of Barneveldt. The work is entitled *Mysteria Hollandica; hoc est, Remonstratio sive Apologia ad Amplissimos Dominos Status Hollandiæ, &c. &c., a D. Joanne ab Olden Barneveldt directa—a Petro Holdero fideliter ex lingua Batava in Latinam translata, cum Notis in usum Evangelicorum.* The notes are written in the bitterest spirit of theological hatred.)

BARNEY, JOSHUA, a commodore in the navy of the United States of America, was born at Baltimore on the 6th of July, 1759. Being one of fourteen children, in a country where there is employment for all who are able and willing to work, he was taken from school at the early age of ten years. He had even at this time conceived a strong desire to become a sailor, but this not meeting with the approbation of his parents, he was sent for a short time to assist in a retail store in Baltimore, and afterwards to be a clerk in a merchant's office in Alexandria. Here he remained only about a year, when his predilection for the sea remaining unaltered, his parents yielded, and he entered on board a pilot-boat when only eleven years of age.

After some time spent in this employ, and when sixteen years of age, he was appointed second mate of a ship which was despatched with a cargo of grain from Baltimore to Nice, in the Sardinian territory. The first mate having left the ship, and the captain dying during the voyage, this lad was left to his own energies for the due performance of the remainder of the voyage. Presuming upon his youth and inexperience, the merchants of Nice, with whom he had to transact business, endeavoured to overreach him, and by their arts embroiled him with the authorities of the town. The spirit and judgment with which young Barney acted on this occasion brought him well through these difficulties, and he completed the voyage to the full satisfaction of the owners of the ship.

On his return to America, Barney finding that the disagreements of the provinces with England had come to an open rupture, immediately determined to adopt the cause of the land of his birth. He was appointed master's mate in a sloop of war called the Hornet, which was sent forthwith to the Bahama Islands to seize upon some warlike stores which had been collected there, which object was successfully accomplished. On his return from this expedition he joined a small squadron of row-galleys employed in the Delaware, and so signalized himself by his bravery and good conduct, as to obtain, when scarcely seventeen, the commission of lieutenant in the United States' navy.

After this Lieutenant Barney was for some time constantly employed on board small vessels of war, and exhibited great zeal and activity in the performance of his duty. In the course of four years he was twice taken by the English and exchanged, and in 1780, when not yet twenty-one years of age, he had married, and was again in active service on board the United States' ship Saratoga. This vessel captured several British vessels, and Barney being placed as prize-master on board one of these, which was in an almost sinking condition, was again captured by an English 74 gun ship, and sent as a prisoner to England.

Having escaped from the prison in which he was confined, and having spent some weeks in London, he embarked for Ostend, visited France and Spain, and reached his home in March, 1782. He was immediately appointed to command a small ship of war, one of a squadron fitted

out for the protection of trade in the Delaware. While thus employed, Barney was attacked by two ships and a brig belonging to the British navy, and, by a combination of stratagem and bravery, succeeded in capturing and securing one of the ships. For this gallant action he received the thanks of the legislature of Pennsylvania, accompanied by a gold-hilted sword; and his prize being fitted out and commissioned in the American navy, he received the command.

Commodore Barney was afterwards sent with despatches to Dr. Franklin at Paris, and returned to America with a British passport, bearing despatches which announced the signing of preliminary articles of peace between England and America.

At this time the commodore was only twenty-five years of age, and the public having no further occasion for his services, he embarked in commercial speculations connected with the sea, but was unsuccessful. In the course of these pursuits he visited France in 1794, and in the following year received a commission as captain in the French navy. He afterwards obtained the rank of *chef-de division*, and served as commander of the French squadron in the West Indies. On his return to France he resigned his commission, and received the grant of a pension for life, which, however, he would never touch. Returning home, he again engaged, with no better success than before, in commercial undertakings, and after a time retired to the cultivation of a farm.

When the war between England and America broke out in 1812, Barney immediately fitted out a privateer, in which he made some valuable prizes, and was shortly afterwards appointed by his government to the command of a flotilla, to be employed for the protection of Chesapeake Bay. This duty he performed successfully against a British force numerically superior to his own. While engaged in this service, Commodore Barney, finding that a British expedition had landed, and was in full march for Washington, left his flotilla in charge of his lieutenant, and joined the land forces with 400 of his men. The hostile forces met at Bladensburg, but the conflict was carried on, as far as the Americans were concerned, by Barney only and his sailors. They stood their ground against fearful odds, until their ammunition was exhausted, when the Commodore was obliged to sound a retreat, but owing to the severity of a wound which he had received in the leg, he was taken prisoner by General Ross. Being liberated on his *parole*, he retired to his farm, where he received the thanks of the State of Georgia and of the city of Washington, the vote being accompanied in the latter case by the gift of a sword. Except in the single instance of being afterwards selected to convey despatches to the American ministers in Europe, Commodore Barney's public life terminated on the field of Bladensburg. The wound he had received on that occasion never thoroughly healed. Afterwards, when on a journey into Kentucky, he experienced a sudden attack of spasms in the wounded limb, and on the following day, the 1st of December, 1818, he died at Pittsburg, in the sixtieth year of his age.

BARNSLEY, a market-town and township in the West-Riding of the county of York, in the parish of Silkston, in the wapentake of Staincross. It is 172 miles N.N.W of London, 39 miles S.W. of York, 9 miles S. of Wakefield, and 13 miles N. of Sheffield.

Several circumstances connected with the early history of this town have contributed to its pre-eminence, in population and in prosperity, over Silkston itself and its other dependencies. Places that were under the protection of religious communities generally prospered more than those belonging to private proprietors, from the circumstance of the exactions upon the inhabitants being fewer and less rigidly enforced. This was the case with Barnsley in its early days. The monks were, in many ways, its benefactors, and they obtained for it the benefit of a market, which contributed much to bring a population within the precincts of the town. Being in a straight line between Sheffield and Wakefield, both antient and important towns, Barnsley derived advantage from the intercourse carried on between them. But the great cause of its prosperity was the early establishment of manufactures. Wire-works were in existence here in the time of James I.

The population of Barnsley in 1831 was 10,330; showing an increase of 2046 persons from the date of the preceding decennial census. The wire-works of Barnsley are said to have furnished the best wire in the kingdom, and it was greatly in demand for making needles. This manufacture has, however, fallen into decay, and there are now only two wire-works in the town. Barnsley has lost its antient trade, and has acquired a new one, to which its present prosperity is entirely owing.

The linen trade is now the chief support of this populous town. Its fabrics are linen cloth, damasks, diapers, drills, ducks, checks, and ticks. The great improvements which Barnsley has made during a very recent period in the production of these articles, some of which are not surpassed even by the Scotch manufactures, is a main cause of the prosperous state of the town. A better kind of work affords superior wages to the productive classes, a benefit which has been felt for several years by the weavers of Barnsley. In damasks and drills it is said that Barnsley stands unrivalled. Some of the above goods are technically called *unions*, from both linen and cotton being united in their production. There are extensive bleaching-works and dye-houses, as well as a spinning factory, all connected with the staple commodity of the town. The numerous coal-mines and the iron-works in the immediate neighbourhood find occupation for hundreds of people: there is also a glass-house and several iron-foundries. The commerce of the town is greatly aided by the Dearne and Dove canal, which passes near the town and connects it with the river Don. The Barnsley canal communicates with the Yorkshire river Calder.

The antient church of Barnsley has been lately rebuilt; it is considered as a chapel of ease to Silkston. It is a perpetual curacy, and is in the diocese and in the gift of the Archbishop of York. A new church was erected by the assistance of the parliamentary commissioners a few years ago. There are seven dissenting congregations, of different denominations, including four of Methodists, one of Quakers, one of Independents, and one of Catholics. There are also seven Sunday schools, which are attended by nearly 1800 children. The National School gives instruction to nearly 400 children: it was erected by the trustees of George Ellis's charity. A free grammar school was built and endowed in 1665 by Thomas Keresforth. This school is at present free for the teaching of Latin and Greek to children belonging to the parish of Silkston. It is a pay-school for all other branches of learning. It contains about fifty pupils.

Barnsley has only two small libraries, and few subscribers to them. A short time ago an attempt was made to establish a Mechanics' Institute. The patronage of Lord Wharncliffe and Viscount Morpeth was obtained, and these noblemen attended the first meeting that was held for this object, but from some want of unanimity the attempt failed. At present it is in contemplation to erect public buildings, including a library, news room, post-office, &c., all the shares for which undertaking are disposed of. It is the wish and the expectation of many that the projected buildings will also provide a place of meeting for the mechanics of the town and neighbourhood.

Barnsley is situated on a hill; the surrounding views are pleasing, the roads good, and much of the land very fertile. The manor belongs to the Duke of Leeds. The ride from Barnsley to Wakefield is one of the most picturesque in the kingdom. The town has obtained the name *Black Barnsley*, supposed by some to be a corruption of *Bleak* from its situation; by others said to arise from the appearance of its neighbouring moors, its antient wire-works, its coal-mines, and its iron-works. Hunter's *South Yorkshire* informs us that 'four existing baronetcies are to be traced to this town of Barnsley: Armytage, Wood, Wombwell, and Beckett;' and that 'Sir Thomas Halifax, Knight, alderman and lord mayor of London, was a native of Barnsley.' (*Communication from a correspondent in Yorkshire.*)

BARNSTAPLE, a borough, market and sea-port town of North Devon, in the hundred of Braunston. It is situated on the eastern bank of the river Taw, in a broad and fertile valley, bounded by a semi-circular range of hills, in 51° 12′ N. lat., 4° 4′ W. long., 172 miles W. by S. of London, and 38 N.W. of Exeter. Risdon, who writes the name 'Barstaple,' says it signifies a 'town of merchandise next the river's mouth,' being derived from the British *bar*, the mouth of a river, and the Saxon *staple*, a market town. The town is very antient, and [illegible] have existed previously to the reign of King Athelstan, who is [illegible] to have built a castle here, and to have erected the town into a borough. It is certain, that at the time of Domesday survey, there were forty burgesses within the walls, and nine without; and the inhabitants were exempted from serving on any ex-

pedition, or from paying any taxes except when Exeter and Totness did so. In the petition of the town of Barnstaple, in the 18th of Edward III., the townspeople declared that, among other privileges granted them by the charter of Athelstan (which they had unfortunately lost), they had ever since that time enjoyed the right of sending two burgesses to parliament. After three inquests, it was finally declared that there was no proof of this supposed charter. (See Hallam's *Middle Ages*, iii. 46.) King John had previously confirmed to them the privileges of which they were actually possessed in the time of his great-grandfather, and the charter of King John was afterwards confirmed by Edward IV. In Leland's time, and even in that of Risdon, there were remains of a castle, the origin of which was assigned by some to King Athelstan, and by others to Joel of Totness, to whom the manor of Barnstaple was granted by the Conqueror. This Joel founded, either in the reign of the Conqueror or that of his successor, a priory for Cluniac monks, dedicated to St. Mary Magdalen, which was at first made dependent on the priory of St. Martin de Campis at Paris; but afterwards (probably in the reign of Henry VI.) became independent, and so continued until the Dissolution, when its gross revenue amounted to 129*l.* 13*s.* 3*d.*, and its net income to 123*l.* 6*s.* 9*d.* The community appears to have consisted of thirteen members. Henry VIII. granted the site to William Lord Howard and Margaret, his wife; and it passed through various hands until it came by purchase to the family of Incledon, which at present holds it. The barony of Barnstaple itself has several times reverted to the crown since the original grant to Joel of Totness. Queen Mary I. granted the property to Thomas Marrow, Esq., whose son sold it to the ancestor of Sir Arthur Chichester, the present proprietor. It does not appear when the market at Barnstaple was first granted. The town was first incorporated in the reign of Henry I., and has returned representatives to parliament ever since the 23d of Edward I. The corporation consists of a mayor, two bailiffs, two aldermen, twenty-two common-councilmen, a recorder, high steward, and other officers. The petty sessions are holden in this town. The charter under which the town is at present governed was granted by Mary I., and confirmed by James I.

Barnstaple is a neat and generally well-built town, and may be regarded as the metropolis of North Devon. A large number of respectable families have been induced by the pleasantness of its situation and the comparative cheapness of provisions to settle there. Barnstaple has of late years greatly increased, and is still increasing, in importance. Many new houses have been built, and are now building, particularly in the suburbs on the London road, named Newport. Barnstaple contributed, as a sea-port, three ships against the Spanish Armada, but it has long since declined from its former maritime importance. The river spreads to considerable breadth, but it is shallow, and accumulations of mud and sand have blocked up the harbour to all but small vessels. A fine quay stretches along the river side to a great length, and is terminated at one end by a handsome piazza, over the centre of which is placed a statue of Queen Anne. The river is crossed by an antient stone bridge, of sixteen arches, which has recently been widened in a very ingenious manner by iron work on each side, supporting foot-paths and a railway. The town has long had a theatre, and a new one has just been completed. It has also frequent assemblies, which are numerously and fashionably attended. The church, dedicated to St. Peter and St. Paul, is a spacious old building, with a handsome spire. It contained several chantries before the Reformation. The living is a discharged vicarage, rated in the king's books at 15*l.* 8*s.* 9*d.* Four chapels are mentioned by Leland; two of them no longer exist; one of the two remaining is used as a warehouse, and the other as a grammar-school.

In consequence of the increasing disadvantages of its harbour, much of the trade of Barnstaple has been transferred to Bideford. Nevertheless, it still enjoys the advantage of being the port for an extensive and improving inland district, and carries on a steady trade. The roads in this part of the country have been greatly improved within these few years; and in consequence of the establishment of several coach and the communications to various parts of the country have been greatly facilitated. Three lace manufactories have of late years been established in the town; to which circumstance the population returns of 1831 chiefly attribute the increase (of 1761 persons) which had taken place since 1821. There are also establishments for the manufacture of baizes, shalloons, tammies, hose, pottery, and fishing-nets, which afford employment to a considerable number of persons. The borough, the limits of which are co-extensive with the parish, contained, in 1831, 1081 inhabited and 58 uninhabited houses, of which 607 were 10*l.* houses. The population at the same period was 6840 persons, of whom 3801 were females; 63 of the males above twenty years of age were engaged in agriculture, and 951 in manufactures, handicraft, or retail trade.

A grammar-school was kept in very early times by one of the priests of the chantry of St. Nicholas, in the parish church of Barnstaple. The present grammar-school was founded by Richard Ferris, who died in 1649: he endowed it with a rent-charge of 10*l.* per annum. Since that time it has only received an addition of 4*l.* per annum, being the interest of 100*l.* given by the Rev. John Wright in 1760. The master is appointed by the corporation, who have the privilege of nominating two boys on the foundation. Bishop Jewel and the poet Gay were educated at this school. About the year 1710 a charity-school for teaching English was founded, in which from forty to fifty boys, and twenty girls, are clothed and educated. Its income arises from the rent of lands purchased, with sundry benefactions, and producing 110*l.* per annum, the interest of 470*l.* stock, and annual collections to the amount of 20*l.* or 30*l.* There is also a national school, on Dr. Bell's system, for 100 children, founded in 1813, and supported by donations and subscriptions. There are almshouses on three different foundations, which together provide for twenty-eight poor persons. An infirmary, called the 'North Devon Infirmary,' was erected seven or eight years since. There are also a Mechanics' Institute and a Horticultural Society. The market, which is held on Friday, is the great market of North Devon: it has generally an abundant and cheap supply of provisions, and a large quantity of corn is sold. The fairs are on the Friday before April 21, 19th of September, and the second Friday in December: the last for cattle.

(Lysons' *Magna Britannia*; Camden's *Britannia*; Risdon's *Chorographical Survey of Devon*; *Boundary Reports*, 1831; *Communication from Barnstaple*, &c.)

BARNSTAPLE, a county in the state of Massachusetts, in the United States of America. It occupies the peninsula which terminates at Cape Cod, and forms a large and beautiful bay called Barnstaple Bay, which is sometimes also called Cape Cod Bay, and sometimes Massachusetts Bay. This county is joined to Plymouth county on the west by an isthmus which has Buzzard's Bay on the south and Barnstaple Bay on the north. Measured from this isthmus, Barnstaple county is sixty-five miles long, and its mean breadth about five miles; the northern extremity of the peninsula, for about thirty miles, is not more than three miles broad. It lies in a direction nearly east and west for half of its length, when it turns abruptly to the north, and its extremity at Cape Cod takes a bend to the westward. Its shape has been compared to that of the human arm bent inward both at the elbow and wrist.

Barnstaple county contains thirteen towns; these, with their respective populations, were, in 1830, as under:—

	Inhabitants.		Inhabitants.
Barnstaple	3975	Orleans	1799
Brewster	1418	Provincetown	1710
Chatham	2134	Sandwich	3367
Dennis	2317	Truro	1549
Eartham	966	Wellfleet	2044
Falmouth	2548	Yarmouth	2251
Harwich	2464		

Together . . . 28,542 inhabitants.

The peninsula contains several harbours both within Cape Cod Bay and on the Atlantic side. The town and harbour of Falmouth are near the south-west extremity in 41° 33′ N. lat., and 70° 31′ W. long., nearly opposite to the north-east part of Martha's Vineyard Island, which, with Nantucket Island and Barnstaple peninsula, form Nantucket Bay. Chatham and Harwich are on the west coast, and open to the Atlantic. The towns and harbours of Yarmouth and Barnstaple are at the bottom of Cape Cod Bay and on the north coast of the peninsula. Barnstaple harbour is about one mile wide and four miles long; at spring tides the water rises fourteen feet: a bar prevents the entrance of large ships.

The soil of the peninsula is nowhere productive, and

in some parts sandy and barren. The principal objects of cultivation are wheat, rye, maize, flax, and onions. (Thompson's *Alcedo;* Malham's *Naval Gazetteer.*)

BAROACH, a pergunnah or district in the province of Gujerat, situated principally between 21° and 22° N. lat. It is bounded on the west by the Gulf of Cambay.

This district was conquered from the Mahrattas by the government of the East India Company in 1781, but in the following year was ceded to Madhajee Scindia, a Mahratta chief, possessing extensive dominions in the province of Malwa, in order to procure his concurrence in the treaty of Salbey. In December, 1803, it again became subject to the Company under the provisions of a treaty of peace concluded with Dowlut Rao Scindia, and it has since remained in the possession of the British.

Baroach is one of the best peopled and best cultivated districts on the western coast of India: it contains 391 villages, and the *jumma*, or assessment to the land revenue, amounts to 21,91,576 rupees (219,157*l.*) per annum. The cultivators are not liable for any other tax or contribution to the state, and having now for more than thirty years enjoyed uninterrupted tranquillity from without—a state of things very different from that formerly experienced by them—the inhabitants are generally in a prosperous condition. Cotton is one of the chief articles of production: in the best seasons the crop is computed to amount to 16,000,000 lbs. of clean cotton, the quality of which is considered good. Including the inhabitants of the principal town, Baroach, or Broach, the population of the district amounts to 160,000, about three-fourths of whom are Hindus, and the remainder Mohammedans.

The city of Baroach, which is the capital of the district, is situated in 21° 46′ N. lat. 73° 14′ E. long. It occupies a spot of high ground on the banks of the Nerbudda river, 25 miles from its entrance into the Gulf of Cambay. The Nerbudda is called by Ptolemy the Namadus. The city is of considerable extent, but a great part of it is now in ruins. It was a place of great trade in the time of the Emperor Akbar, to whom it surrendered in 1572. The Nerbudda, in this part of its course, is two miles wide, but very shallow, so that only vessels of small burden can come up to the town. The river abounds with fish, among which are excellent carp.

The situation of Baroach corresponds exactly to that of Barygaza, or Barugáza, which signifies the water of wealth. The antient history of this place is given in Dr. Vincent's *Commentary on the Periplus of the Erythræan Sea.* At the epoch to which the *Periplus* belongs, the city of Barygaza was a very considerable emporium of commerce, receiving across the Balaghaut mountains, from the city of Tagara (the modern Dowlutabad), gems, spices, silk stuffs, and other productions of the interior of India, for exportation to Egypt, and thence to Rome. It imported, in return, Italian, Greek, and Arabian wines, gold and silver, and other metals, together with glass, 'girdles or sashes of curious texture,' and some other European productions. This trade was rendered hazardous to the navigators by the numerous shoals in the gulf, then called Sinus Barugazenus, which rendered it necessary to employ experienced pilots, and to take advantage of the tides in entering or leaving the river and gulf. The effects of the *bore* on the navigation of the Gulf of Cambay are thus described in the *Periplus.*—'Without warning, you see the bottom laid bare, and the sides next the coast, where vessels were sailing but just before, left dry, as it were, in an instant; again, upon the access of the flood tide, the whole body of the sea is driven in with such violence, that the stream is impelled upwards for a great number of miles with a force that is irresistible. This makes the navigation very unsafe for those who are unacquainted with the gulf, or enter it for the first time. No anchors are a security, for when the vehemence of the tide commences there is no intermission—no retreat. Large vessels caught in it are hurried away by the impetuosity of the current, and thrown on their sides or wrecked upon the shoals, while the smaller ones are completely overset. When the sea appears perfectly calm, you shall hear in a moment a rushing sound like the tumult of battle, and the water, driving forward with the utmost impetuosity, covers the whole of the bare shoals in an instant.'

The modern Baroach maintains a considerable trade with Bombay and Surat, to which places it sends cotton, grain, and seeds. This traffic is carried on in boats which draw but little water, and which are [illegible] by large lateen sails.

In 1812 the population was found, by enumeration, to be,

Hindus	19,836
Mohammedans	9,888
Parsees	2,992
Total	32,716

The heat experienced at some seasons of the year is excessive, and the city has not the reputation of being healthy, especially to Europeans, which latter circumstance may be partly owing to the confined manner in which the streets are laid out, and to the dirty condition in which they are constantly suffered to remain.

A *pinjrapole*, or hospital for animals, is maintained within the city, and considerable sums are contributed for this purpose by the Hindu inhabitants, who tax themselves on occasion of their marriages and other ceremonies, and levy besides, for the same object, a duty upon various mercantile transactions. About 10,000 rupees are annually raised in this manner.

Baroach is distant 221 miles from Bombay, 805 miles from Calcutta, 549 miles from Hydrabad, 761 miles from Lucknow, 820 miles from Benares, 947 miles from Madras, 266 miles from Oojein, and 287 miles from Poona, travelling distances.

(Rennell's *Memoir of a Map of Hindustan;* Mill's *History of British India; Reports of Committee of House of Commons on the Affairs of India,* Sess. 1832; Vincent's *Periplus of the Erythræan Sea,* part ii., and the Greek text of the *Periplus,* in Hudson's *Minor Geographers,* vol. ii.; Robertson's *Historical Disquisition concerning Antient India.*)

BARODA, an important city and district in the province of Gujerat. The city is the capital and residence of the Maharatta chief, known as the Guicowar, a family name which in time has come to be considered as a kind of title. Baroda, which is situated in 22° 21′ N. lat. and 73° 23′ E. long., is mentioned by Abul Fazl as having been a large and wealthy town during the reign of Aurungzebe, when his great work, the *Ayeen Akbery,* was written; and we are told by Sir John Malcolm, who visited Gujerat in 1830, that the city was at that time 'one of the richest cities, in point of commercial and monied capital, of its extent in India.'

The fortifications at Baroda are not strong: the walls are slightly built, and would afford but little protection against any attack on the part of European troops. Some of the streets of the town are spacious, and the remains of several handsome buildings are still to be seen, but the houses which have been erected since the occupation by the Maharattas are of a very humble character. The population was estimated in 1818 at 100,000 persons, at or about which number it probably continues at present.

The only bridge in the province of Gujerat is thrown over the river Viswamitra, a short distance from the city of Baroda. The streams of the province are crossed either in ferry-boats, or on a light platform made buoyant by means of empty earthen pots.

The assumption of sovereign power on the part of the Guicowar family took place early in the eighteenth century. Previously to that time, Pillajee Guicowar had been simply *potail,* or head manager of the public concerns of a village, an office of common occurrence in many parts of India, and which is usually conferred by the cultivators resident in each little community upon that one of their body whom they consider best fitted by his talents for serving the common interest. The present Guicowar, Syajee Rao, succeeded his brother Anund Rao in 1819.

A treaty of amity was entered into by the East India Company's government with Futteh Singh Guicowar in 1780, but little or no intercourse ensued between the two governments until 1802, when Anund Rao Guicowar applied to Mr. Duncan, the governor of Bombay, for assistance to put down the rebellion of Mulhar Rao, a member of his family, who was striving to obtain the sovereign authority in Gujerat. In consequence of this application, a small force was dispatched, which, after several engagements with the forces of Mulhar Rao, entirely suppressed the rebellion. The treaty which at this time was concluded with the Guicowar contained an undertaking, on the part of the British, to liberate that prince from the state of thraldom in which he was then held by his mercenary Arab troops, who were in consequence ejected from Gujerat. Before this undertaking could be accomplished, it was necessary to gain over the assent of numerous creditors to the state who held the

security of the Arab commanders for loans advanced to the prince. The arrangements made to this end have since occasioned much embarrassment to the Company's government. In 1805 another treaty was executed between the Guicowar and the Company, which contracted that three battalions of native infantry, a company of European artillery, and a company of lascars, should be furnished, the expense of maintaining which was to be provided for by the Guicowar state by assignments of territory to the Company yielding an annual revenue of 11,70,000 rupees. In 1817 the Guicowar government was called upon to augment this subsidiary force, and was required to furnish troops to act in conjunction with the British forces then employed in the province of Malwa.

On the accession of the reigning Guicowar in 1820 new arrangements were made with him. The general management of affairs was taken from commissioners who had held it, and was placed in the hands of the chief, preserving, however, to the Company, certain rights of interference which were considered indispensable to discharge the obligations under which it had been brought by the above-mentioned treaties, and to prevent the sacrifice of all the advantages that had been realized through the past management of the British. The confidence thus placed in the Guicowar was found to be abused: the debts for which the Company had given its guarantee were increased rather than diminished through the grasping avarice of the chief, who thought more of augmenting his private hoard than of liquidating the demands of the public creditors, and the concerns of the state were in consequence thrown into so much confusion that the English government was induced, in 1828, to place under sequestration such portions of the Guicowar's territory as would yield a revenue adequate to discharge the obligations for which the Company was answerable. In this situation our relations with the Guicowar state stood up to nearly the present period. Very recently the British resident has prevailed on Syajee to grant such terms to the bankers, his creditors, as have induced them to release the British government from its guarantee of the debts due to them, and the sequestrated districts have accordingly been restored to the Guicowar.

The district of Baroda is rich and well cultivated, and appears to be one of the most flourishing tracts of land in Hindustan.

The greater part of the population is composed of Bheels and Coolies. There are, besides, a few Mohammedans, Hindu merchants, and Rajpoots. The Bheels chiefly inhabit the wilder parts of the territory. The Coolies form more than one-half of the entire population. These two tribes are supposed to have been originally the same people, and to have been the aborigines of Gujerat. Their principal employment is agriculture. They live under the authority of their own chiefs, and are not willing to acknowledge any other superiors, paying but little respect to the laws whenever they are not in agreement with their own habits and supposed interests. They are of very turbulent dispositions, and addicted to plunder, in the pursuit of which they display a desperate courage. They commonly wear a shirt of mail over their other dress, and do not consider themselves to be properly accoutred unless they have a sword, shield, and bow and arrows. Their horsemen carry each a long spear and a battle-axe.

(Letters from the Hon. Mountstuart Elphinstone, and from R. Jenkins, Esq., to T. H. Villiers, Esq.; from B. S. Jones, Esq., to the Right Hon. Charles Grant; Minute of Sir John Malcolm, November, 1830, as quoted in Appendix to the political section of the *Report of the Committee of the House of Commons on the Affairs of India*.)

BARO'METER, from two Greek words signifying *the measurer of weight*, is only applied to those instruments in which a column of air is weighed against a column of mercury.

The invention of the barometer is one of the most curious in the history of philosophy. No new discovery, not even those first substantiated by the telescope, ever knocked so hard at the door of a received system, or in a manner which so imperiously demanded admission. It will therefore be worth while to state the circumstances attending it.

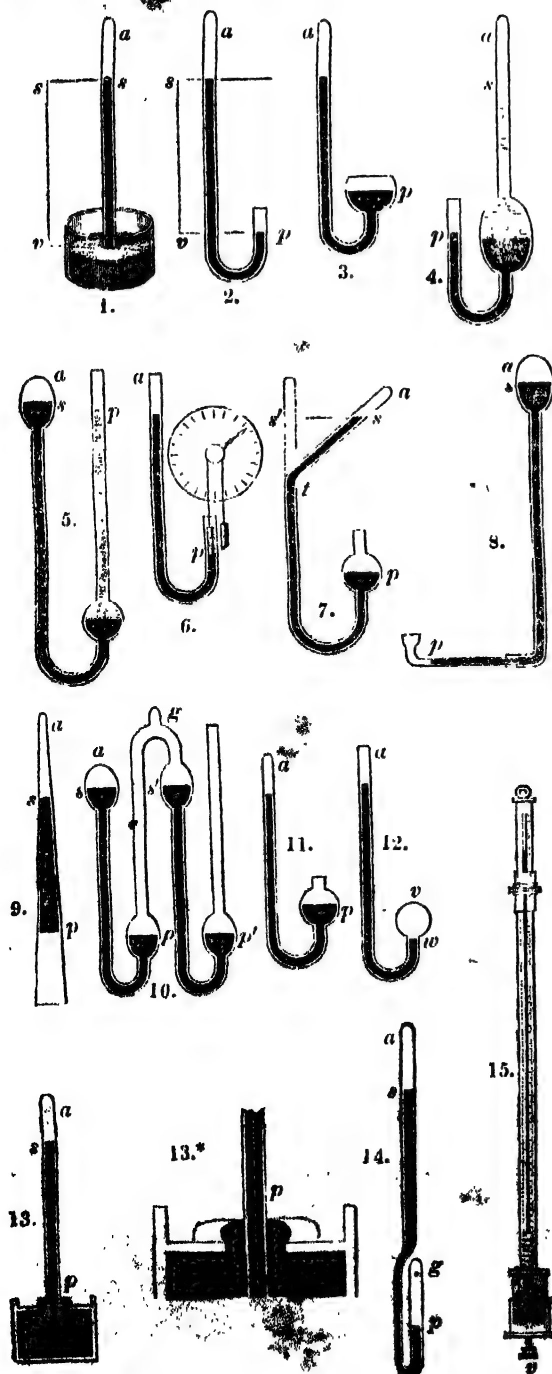
The phenomena of the common pump had been well known for more than a century at least before the commencement of the Christian era. The mode of explanation was simply the well-known maxim, that 'nature abhors a vacuum.' Nor do we know [see VACUUM] of any experimental attempt to discover why nature abhorred a vacuum, before the time of Galileo. The phrase itself, considered simply as a representation of a well-known fact, namely, that the laws of nature will not permit a vacuum to exist, may be as useful now as then. But considered as an explanation, we need not dwell upon its utter worthlessness. We might equally well explain how a stone falls sixteen feet one inch in the first second of its descent, by saying that its nature has an antipathy to more, and a repugnance (if we wish to vary the phrase) to less.

Very general terms, such as *vacuum*, *space*, &c., furnish no tests of the validity of a method of explanation, when compared with others which have direct numerical meaning. The common story is, that the pump-makers of the Duke of Florence found that water would not rise higher than thirty-two feet, or thereabouts, when the air was exhausted. They applied to Galileo for a solution of this problem, and he, having his mind pre-occupied by the usual form of words, gave them a very simple answer, namely, that the power of nature to contend against a vacuum ceased when she had destroyed one of thirty-two feet high. [See GALILEO.] That the mysterious indefinite *nature* should be in constant hostility to the equally mysterious indefinite *vacuum*, would not then appear ludicrous; but *thirty-two feet* must have destroyed all the poetry of the explanation, and it had nothing else to depend upon. The above story is told in several different ways (it has been said, for instance, that the answer of Galileo was ironical), but whichever may be true, it is most probable that it led him to abandon the theory of nature's horror, though without substituting any other. It has been thought that before his death he suspected, at least, the true explanation. His pupil Torricelli first imagined that the weight of the atmosphere might be the counterpoise to the thirty-two feet of water; or at least he was the first whom we know to have applied himself to try this hypothesis by experiment. He saw that, if it be a weight of air which counterpoises the thirty-two feet of water, it must follow that by the substitution of mercury instead of water, the height of the column necessary to counterpoise the weight of air would be reduced in the proportion in which mercury is heavier than water. For instance, that if mercury be fourteen times heavier than water, bulk for bulk, the fourteenth part of thirty-two feet, or about two feet four inches, would supply the place and produce the effect of the water. He accordingly filled a tube, more than three feet long, and open at one end only, with mercury; and then stopping the open end with the finger, he placed the tube in an open vessel of mercury with the open end downwards. On removing the finger, the mercury in the tube sank until it stood in the tube at about twenty-eight inches higher than the mercury in the vessel. He thus constructed what is at this time considered the best form of the barometer.

Torricelli died shortly afterwards (1647), leaving his great discovery not quite complete: for though he had made it apparent that the weight of the water and the mercury was a counterpoise of something, most probably of a weight of air, the latter was not quite certain. The invention, however, was taken up by Pascal, Mersenne, and others in France, and by Boyle in England. The latter, by means of the air-pump, was enabled to subject air of different degrees of density to the test of the barometer. Pascal did the same; and, in addition, first suggested (in 1647), that if the mercury were sustained by the weight of the air, it would necessarily fall in ascending a high mountain, by the diminution of the superincumbent column of air. He accordingly requested his relative, M. Perrier, to try the barometer at the summit and the base of the mountain of Puy de Dôme, in Auvergne, and the result was that the mercury, which at the base stood 26½ inches (French), was only 23⅛ inches at the summit. Pascal afterwards found the same result sensibly shown in the ascent of a church tower and of a private house. The fact was now completely established, that the weight of the air upon any horizontal base was equivalent, roughly speaking, to a weight of mercury of the same base, and about 28 inches high. The antient philosophers might have come to a corresponding conclusion, for, as Deluc remarks, though they had not mercurial barometers, they had pumps, with which, had the taste for experimental inquiry existed, they might easily have performed Pascal's experiment. But the personification of nature answered every purpose, and checked every inquiry.

Soon after the first discovery, many different methods

were imagined for improving the construction of the instrument. The continual variations of the altitude of the mercury did not escape notice; and the idea of the *weather-glass* was almost contemporaneous with that of the *barometer*. It was observed that changes of the height of the mercury corresponded to changes of the weather, though experience was not yet sufficiently extensive to decide in what manner. The very gradual progress of these changes, and the frequent smallness of their amount, rendered it desirable so to construct the instrument that the effect should be multiplied as much as possible. And since an alteration of level in the tube of the barometer also produces an alteration of level in the cistern with which it communicates, it soon became evident that no fixed scale of inches would serve to show the difference of levels (or, as it is called, *the height of the barometer*) merely by reading off the height of the mercury in the tube. We shall now give an account of the most remarkable among the various constructions which have been employed or suggested. Most of them are from De Luc, *Recherches sur les Modifications de l'Atmosphère*. In all the diagrams, a is the closed or vacuum end of the tube, and p the place where the mercurial or other column communicates directly with the atmosphere. The bulbs which are usually drawn, should all, properly speaking, be cylinders. Enough is introduced to show the principle of the construction, but not the method of mounting the instrument. Each article is headed by the name of the inventor.



Many of the following contrivances, though not at present in use, may suggest ideas of value for other purposes:—

1. *Torricelli.*—This is the simple apparatus already described. The inverted tube, full of mercury, 33 or 34 inches in length, is placed in the cistern of mercury. The fluid sinks until the column contained between the two levels counterbalances the pressure of the air. From a to s there is a vacuum, or at least a space only filled with the *vapour of mercury*, which we shall presently mention.

2. and 3.—The siphon barometer (No. 2.) was early adopted as more convenient than that of Torricelli. The pressure of the air at p is counterbalanced by a column of mercury in length $s\,v$. But the indications of this barometer are not nearly so great as those of Torricelli's; for an inch of variation in the difference of levels makes the mercury in the closed tube descend half an inch, and that in the open tube ascend half an inch, or *vice versâ;* thus altering $s\,v$ by one inch (s falling half an inch, and p rising half an inch). In Torricelli's barometer, if the horizontal section of the cistern (the part occupied by the tube excluded) were twenty times that of the tube, then a diminution of an inch in $s\,v$ would be marked by a fall of $\frac{20}{21}$ of an inch in the tube, and a rise of $\frac{1}{21}$ of an inch in the cistern; for the mercury which is driven out of the tube causes a little addition to the cylinder of mercury in the cistern, of twenty times the base it occupied while in the tube, and therefore of only one-twentieth of its height. No. 3 is a siphon barometer, with a similar method of increasing the variation in the tube. The siphon terminates in a basin of greater diameter than the tube. If the horizontal section of the basin be twenty times that of the tube, we have again the case just explained.

4. *Descartes.*—Here we have the top of a barometer so constructed, that a narrow tube shall open into a wider cistern, which opens downwards into a tube. Any light fluid, say oil, is first poured in, and afterwards mercury; the vacuum is then made as in Torricelli's experiment, and the quantity of oil, and the diameter of the cistern are so adjusted, that the extreme variations of the weight of the atmosphere shall allow some mercury to remain in the cistern. Let us say that the specific gravity of the oil is one-twentieth that of mercury, or that a column of oil is of the same weight as a column of mercury one-twentieth of its length; and let us suppose a fall of an inch in the purely mercurial barometer. Let us also suppose the horizontal section of the cylinder to be ten times that of the tube above and below: then any descent of the mercury in the cylinder is shown by ten times as great a descent of the point s in the upper tube, because a portion of the cylinder must be filled out of the tube. When Torricelli's barometer falls an inch, the mercury here will fall $\frac{2}{3}$ of an inch, and the oil $\frac{20}{3}$, or $6\frac{2}{3}$ of an inch: this $\frac{20}{3}$ of an inch of oil being equivalent only to $\frac{1}{3}$ of an inch of mercury. And a fall of $\frac{1}{1000}$ of an inch of Torricelli's barometer would be marked by a fall of $\frac{1}{150}$ of an inch in that of Descartes. Huyghens tried to construct this barometer (Descartes having died before he completed it), but found that the air contained in the upper fluid always escaped into the vacuum. He therefore suggested the next plan.

5. *Huyghens.*—To the siphon barometer he added a cistern at the vacuum end of the tube, equal in diameter to the cistern in which the mercury communicates with the air. The latter cistern communicates with a narrow tube, say one-tenth of the horizontal section of the cistern, and the barometer was completed with such a quantity of mercury as would always leave some in both cisterns. The remainder of the lower cistern, and a portion of the tube above it, is filled with water. Now it is evident that the water is merely to be considered as a very small addition to the weight of the atmosphere. A depression of an inch in Torricelli's barometer would cause a depression of half an inch in the higher cistern, and a rise of half an inch in the lower. Neglecting the effect of the weight of the column of water, it appears that a rise of half an inch in the lower cistern would be accompanied by ten times as great a rise of the water in the tube, on account of the proportion of the

horizontal sections. Hence the water multiplies the indications of Torricelli's barometer five times. The objections to this construction are, that the portion of the tube abandoned by the sinking of the water remains wet, or a part of the water is left behind, so that it appears to have descended somewhat lower than it ought to do; and also that the evaporation of the water produces a similar effect. And we need hardly observe that, except for extreme exactness of observation, no improvement upon Torricelli's barometer is here pretended; so that, if this end be not answered, the whole peculiarities of the construction are useless. Dr. Hooke slightly varied this barometer, by adding another fluid above the first, and making the tube terminate in a third cistern.

6. *Hooke's* wheel barometer, a well-known plaything, for as to accuracy it deserves no better name. On the mercury in the syphon barometer a weight is placed, which is very nearly counterpoised over a pulley by another weight. The ascent of the mercury raises the weight, and the string which connects the weights makes the pulley revolve more or less. A hand attached to the pulley shows the quantity of revolution, and the plate is divided so as to show how much revolution of the pulley corresponds to a hundredth of an inch (usually) of rise or fall in the barometer. In the common instruments it is usual to mark *fair*, *changeable*, &c. at certain places: an innocent practice, because those who use the instrument are generally aware that it is not the *state* of the barometer which furnishes any probable test of the weather, but the *change* which is taking place for the time being. For observing the mere fact of a change, and roughly whether it is much or little, this instrument is sufficiently well adapted for those who wish to 'give an air of philosophy to their parlours,' but for marking the exact quantity of the change, or the absolute height of the column, it is worth very little.

7. *Sir Samuel Moreland.* By inclining the tube of the barometer, its indications were supposed to be rendered more sensible. The mercury standing at s' in the upright barometer (dotted) would stand at s on the same level in the *oblique* or *diagonal* barometer, by a well-known law of hydrostatics. And since any difference of levels cuts off a longer space from an inclined than from a vertical line, the indications of change on the former must be more marked than on the latter. But the friction of the mercury is increased and the place of the head of the column of mercury is difficult to be read by a vertical scale, because of its inclination.

8. *John Bernoulli.*—The mercurial column is here made to end in a smaller horizontal tube of considerable length, the pressure of the air acting horizontally against the column of mercury. The vacuum is made in a cistern, as in No. 5. This and the smallness of the horizontal tube render the indications very great, in the manner already explained. There is no change in the lower level of the mercury, but other circumstances render this construction not more worthy of confidence than the preceding.

9. *Amontons.*—A conical tube of glass is closed at the upper end. It is partly filled with mercury, and the tube is inverted. The pressure of the air from underneath prevents the total descent of the mercury, but allows it to descend in the cone until it forms a column of a height sufficient to counterpoise the weight of the atmosphere. It is evident that in a conical tube the column, as it descends, will spread horizontally and decrease in height. But by the laws of hydrostatics, it is the vertical height of the column only on which depends the pressure per square inch on the base. If the weight of the air decrease, the mercury must fall until, by increase of its horizontal dimensions, the height has been decreased as much as is necessary. But a tube of the requisite degree of accuracy is almost an ideal supposition. The principle itself is the most simple and elegant of all those which have been applied to the instrument.

10. *Amontons.*—This is a barometer in which the column of external air is balanced by several different columns of mercury, as follows:—From a to s is a vacuum as usual: from s to p mercury; from p to s' air: from s' to p' mercury. When $a\,s\,p$ has been filled in the usual manner, the mercury $s'\,p'$ is admitted at g, which is then closed. Neglecting entirely the weight of the air $p\,s'$, and considering it merely as a medium for communicating pressure, the difference of levels of p and s, and of p' and s', will each be half of the column for the time being in the Torricellian barometer. For the pressure of the external air at p' is counterbalanced by the pressure of the two columns, that of the column beginning at s being communicated to that beginning at s' by the intermediate air $p\,s'$. By a repetition of the same principle, each column might be made one-third, one-fourth, &c., of the Torricellian column. But the exactness required in the several parts is impossible to be attained.

11. *Mairan.*—This is a simple syphon barometer, so short in the tube, that the mercury does not descend until the density of the superincumbent air is considerably less than that of natural air. It is used under the receiver of an air-pump [see AIR-PUMP] to indicate the degree of exhaustion which has taken place.

12. *Hooke.*—This barometer was intended to be used at sea. It is not a mercurial barometer, but a portion of air confined in the bulb $v\,w$ by the liquid which mounts in the tube. Any increase of weight in the exterior air compresses the air in the bulb by pressing on the liquid. This is not at all to be depended upon, as the effect of changes of temperature makes it rather more of the thermometer than the barometer.

13. *Prins.*—This is a Torricellian barometer, with a contrivance for keeping the lower level always the same. The cistern is closed at the top, excepting an orifice very little larger than is necessary to admit the tube. The mercury escaping through this orifice, and its cohesion, with the repulsion which it exercises towards glass, preventing any part separating from the rest, it forms a bulb round the tube, which bulb, when the mercury falls in the tube, instead of rising, spreads itself out upon the glass, in the manner shown in the dotted section.

14. *Gay Lussac.*—This barometer is very convenient for carriage. It is a syphon barometer, differing from others of that species only in form, and communicating with the external air through a hole g, pierced too small to allow mercury to pass through it.

15. *Fortin.* This barometer is distinguished from the rest by a method of adjusting the lower level of the mercury exactly to the *zero* point of the scale before commencing the observation. It is a Torricellian barometer, in which the bottom of the cistern can be raised or lowered by a screw. An ivory needle points downwards, the point of which is on a level with the zero of the scale. The bottom of the cistern is raised or lowered by the screw, until the point of the needle and its image in the mercury precisely coincide. The observation is then made.

In order to construct good barometers, such that two or more may always stand (if possible) at the same height when in the same place, or may be correct indexes of the differences of height in different places, the following points must be attended to.

1. The mercury must be perfectly pure and good, free not only from other substances, but also from the small coating of air which adheres to all bodies in their natural state. The interior of the tube must also be freed from this coating of air which, if allowed to enter with the mercury, would in time expand and render the vacuum above the mercury imperfect. All these ends are gained, in a great degree, by boiling the mercury in the tube previously to inverting it and allowing the vacuum to form. De Luc found that all his barometers gave different heights until he boiled the mercury; after which the greater part of the difference disappeared. A part of the mercury should first be boiled in the tube, and the rest added in a hot state; after which the boiling should be repeated. One of the best tests of a good vacuum is when, by shaking the tube, the mercury strikes the glass at the closed end of the tube with a hard, well defined, and instantaneous tap. The vacuum can never be quite perfect: for, generally speaking, a small quantity of air will remain; and besides this, mercury itself will rise in vapour into the presumed vacuum [see MERCURY], though not to so great a degree as to cause any perceptible pressure, and [see ATMOSPHERE] not more than it would rise in the air. The mercurial vapour is well established, as well by chemical tests, as by the effect upon human health of breathing an atmosphere to which much of the metal has been exposed. If there be moisture in the supposed vacuum, the mercury will sink on applying the hand, or any other warm substance.

In order to compare two barometers, which are in different places, the temperature of the mercury must be attended to. For as mercury expands with increase of temperature, a higher column of the fluid will be required to counterpoise a given weight of air. To observe the temperature of the mercury, a thermometer is attached to the best instruments,

the bulb of which is in the cistern. All observed heights should be reduced to what they would be at some given temperature, say the freezing point of water. And it must be remembered that the scale itself, on which the heights are measured, expands or contracts with the mercury. If the two expanded or contracted equally, there would be no occasion for any correction, but if the mercury expand more than the scale, it is the difference of the expansions by which the observed height will be wrong. Mercury expands more than the material of any scale which is ever employed.

Let $a°$ be the observed temperature, x the fractional part of a bulk of mercury which must be added to it for every degree of increase of temperature, y the fractional part of its length by which the scale increases for each degree. Then if h be the observed height (temperature being above freezing), the height which would have been observed, had the mercury been at the freezing point, is

In the Centigrade thermometer,

$$h - h\,a\,(x - y)$$

In Fahrenheit's thermometer,

$$h - h\,(a - 32)\,(x - y)$$

The rates of expansion are (Pouillet, *Physique*, vol. ii p. 714) for the Centigrade thermometer,

For mercury	·0001802
„ glass	·0000086
„ copper	·0000172

In this country the scale is usually engraved on some mixed metal, and no very satisfactory value of the expansion can be given. It will be sufficiently accurate to suppose the expansion of mercury of every degree of Fahrenheit to be ·0001 of its bulk at the freezing point, and to neglect that of the scale altogether, which gives the following rule:—

To reduce an observed altitude to that of mercury at the freezing point, subtract the ten thousandth part of the observed altitude for every degree by which the mercury is above the freezing point (of water, of course). At a height of thirty inches, and a temperature of 50 (Fahr.), this correction would be ·054 of an inch.

The expansion of the barometer tube itself need not be attended to. The consequence of it is, that more mercury is drawn out of the cistern to form the requisite column, but the height of the column is unaltered.

(Remember that the *cubical* expansion, not the *linear*, must be used for the mercury in the formula.)

2. The height observed requires another correction for the *capillary* repulsion, by which it stands somewhat lower than it otherwise would do. Without entering further into this point, we shall give some tables from different sources mentioned, and also a table for reducing French millimetres into English inches, within those limits which will be useful in barometrical observations. The convex form of the top of the column of mercury is owing to this action, and, in the following tables, the correction is to be applied to the height of the top of the convexity.

Depression due to Capillary Action

1. Baily (*Useful Tables and Formulæ*, p. 191)

Diameter Hundredths of inches	Depression (in decimals of an inch) according to Ivory	Young	Laplace
5	·2949	2964	
10	1404	1424	1394
15	0865	0880	0854
20	0583	0589	0580
25	0409	0404	0412
30	0293	0280	·0296
35	0212	0196	0216
40	0154	0139	0159
45	0112	0100	·0117
50	0082	0074	0087
60	0043	0045	0046
70	·0023		0024
80	·0012		·0013

2. Pouillet, *Elemens de Physique*, vol. ii p. 712.

(Millimetres and Decimals of Millimetres.)

Diameter	Depression	Diameter	Depression
21	·028	17	·077
20	·036	16	099
19	·047	15	·127
18	·060	14	·161
13	·204	7	877
12	·260	6	1 136
11	·330	5	1 507
10	·419	4	2 053
9	·534	3	2 902
8	·684	2	4 579

To reduce Millimetres to Inches and Decimals.

Baily (work and page above cited, abridged)

1 millimetre is	·0394 inches.
2	0787
3	·1181
4	1575
5	1969
6	2362
7	·2756
8	3150
9	3543

Millimetres	Inches	Millimetres	Inches
710	27 9531	755	29 7249
715	28 1501	760	29 9218
720	3470	765	30 1187
725	5438	770	3155
730	7407	775	5124
735	28 9375	780	7092
740	29 1344	785	30 9060
745	3312	790	31 1029
750	5281		

Example.—What is 758 83 millimetres in English inches?

755 millimetres are	29·7249 inches
3	1181
8	0315
03	0012
758 83 millim. are	29 8757 inches

We must observe, that in the syphon barometer, No. 2, and also in the modification of it proposed by Gay Lussac, No. 14, no correction for capillarity is necessary, for the depressive force is equal on both sides. In all other barometers the capillary action of the cistern is insensible, owing to the magnitude of its diameter, so that only that of the tube need be attended to. Perhaps the best way of settling the exact amount of capillary depression would be by a very large number of observations upon two good barometers of different sized tubes standing in the same place; but we are not aware that this has been attempted. The tube must be very exactly cylindrical, or the capillary correction will not be the same in all its parts.

3. The barometer must hang quite vertically, for any deviation from the vertical converts the instrument, *pro tanto*, into the diagonal barometer, No. 7, and makes the divisions on the scale too small.

4. The scale is usually divided into tenths of inches, with a vernier, by which the height may be measured within the two hundredth of an inch. Many observers profess to go nearer, but considering the uncertainty (if we speak of thousandths of inches) of the corrections both of temperature capillarity, of the zero point of the scale, &c., this must be considered as mere play. Whatever reliance may be placed on the mean of a large number of observations, we think we may safely defy any one to show an even chance that a single observation will be free from instrumental errors even as far as the two-hundredth of an inch.

5. The exact determination of the level of the mercury in the cistern is in many barometers impossible. All the best have some method of adjustment, either as described in Fortin's barometer, No. 15, or by placing a float on the surface of the mercury with a needle rising vertically from it, some point of which needle is adjusted by raising or lowering the bottom of the cistern.

If a barometer be made, which is not a syphon barometer with uniform tube, No. 2, or with means of adjusting the lower level of the mercury, it should certainly be the simplest form of Torricelli's instrument, namely, a perfectly cylindrical tube immersed in a perfectly cylindrical cistern. The larger the cistern the less the error arising from variation of the lower level; but if this be sensible, and if the barometer be good in all other respects, then if the barometer now supposed be placed by the side of one which is perfect (Fortin's, for example), and observations be made with the two, the

difference between any two heights observed with the correct instrument, will always bear the same proportion to the difference of the two heights measured at the same times with the incorrect instrument. This is a simple proposition which can be readily proved by geometry. Thus if we have 28·9, and 30·6 inches on different days on the scale of the false barometer, in this one respect only, and 28·8 and 30·7 on that of the true barometer at the same times, then the proportion of 30·6—28·9 to 30·7—28·8, or that of 1·7 to 1·9, or of 17 to 19, will always be found to exist between the same differences, if similar double sets of observations be repeated. At least, if this be not found to be the case, it is a proof that one or other of the instruments has some other defect. Should the proportion be found nearly to exist, a correction may be derived, which will be better than nothing, as follows: let h be the reading of the false barometer in any other case, and h' that of the true barometer; then $h-28·9$ bears to $h'-28·8$ the proportion of 17 to 19, from which h' can be found. We have taken a case which could hardly ever occur, to make the data more distinct. This correction may be made upon the scale itself by the maker, and requires a little alteration both of the place of the zero point and of the length called an inch.

The great value of the barometer as an instrument of exact observation, lies in the facility with which it can be used, and the comparative ease with which the mean of a large number of observations can be obtained. As an instrument for a single observation, we have seen that no extreme degree of reliance can be placed on it; perhaps we should rather say, that this, with every other instrument, will not give accuracy to the utmost limit to which readings can be attempted to be carried. For if we could determine the altitude of the mercury with precision to the thousandth of an inch, then the mean of many observations could be relied on to the ten-thousandth, and observers would try to read single observations to the ten-thousandth also; and exactly the same might be said even of the best transit instrument.

But many are, or might be, observers of the barometer, who think their instruments are not sufficiently exact to make it worth while to persevere in recording results. These we would remind of a truth well known to all observers, and demonstrated by mathematicians, that the worst instruments do not differ near so much from the best *in the mean of a large number of observations* as in single observations, provided only the instrument be such that any single result is as likely to be too small as too great; and thus a bad instrument in the hands of a persevering observer may do more good than a splendid one in those of an idler.

The following rules may be useful to those with moderate instruments—with almost anything but Hooke's plaything, No. 6:—

1. If there be no thermometer in the mercury, always observe an external thermometer, and correct by it in the manner hereinbefore shown; or, still better, place a thermometer with the bulb in a small cup of mercury, and keep it always by the side of the barometer.

2. Observe as much as possible at stated hours of the day, particularly at noon, if convenient.

3. Get a mathematical instrument-maker to determine the diameter of the tube, and apply the correction for capillarity and for temperature immediately after the observation is made.

4. Record the observations both of barometer and thermometer always in the same way, stating the general aspect of the heavens and the wind at the time.

5. Make the observation twice at least, unsettling the vernier between the two. Take the mean of the results if they differ, and with no coaxing of the instrument to make the second like the first.

(For the use of the barometer in astronomy see Refraction; as an index of the weather see Meteorology; for the diurnal variation, see Atmosphere; for the phenomena of luminous barometers, see Light, Barometrical; for the use of the barometer in measuring heights, see Heights, Measurement of.

We subjoin the most common rules by which to use the barometer as a weather-glass. Most observers must be well aware that no one of these rules is always true. There is not always rain after a fall of the barometer, but only most frequently.

The first set of rules in the following list was given by Dr. Halley, the second by Dr. Harris, author of the *Lexicon Technicum* (one of the earliest Encyclopædias, 1716), who had them from John Patrick, then a well-known maker of barometers.

Halley's *Rules.—Phil. Trans.* No. 187:—

1. In calm weather, when the air is inclined to rain, the mercury is commonly low.

2. It is generally high in good, serene, settled, fair weather.

3. It sinks lowest of all in very great winds, though they are not accompanied with rain.

4. *Cæteris paribus*, the greatest height of the mercury is found when an easterly or north-easterly wind blows, if it be not too strong. (This must be understood of England only.)

5. In calm, frosty weather, the mercury is generally high.

6. After great storms of wind, when the mercury has been low, it generally rises very fast.

7. In latitude 45°, and about 10° on each side (being the seat of the variable winds), is the greatest variation of the height of the mercury; the rise and fall of it gradually decreasing towards the equator and poles, so as within the tropics, and near the polar circles, to stand at the same height in all weathers.

Patrick's *Rules.*—Harris, *Lex. Tech.* art. 'Barometer:'—

1. The motion of the mercury does not exceed three inches in its rising or falling, in a barometer of the common form.

2. Its least alterations are to be minded in order to the right finding the weather by it.

3. The rising of the mercury presages in general fair weather, and its falling, foul, as rain, snow, high winds, and storms.

4. In very hot weather the falling of the mercury foreshows thunder.

5. In winter, the rising presages frost; and in frosty weather, if the mercury falls three or four divisions, there will certainly follow a thaw; but in *a continued frost*, if the mercury rises, it will certainly snow.

6. When foul weather follows *soon* after the falling of the mercury, expect but little of it; and judge the same when the weather proves fair *shortly* after the mercury has risen.

7. In foul weather, when the mercury rises much and high, and so continues for two or three days before the foul weather is over, then expect a continuance of fair weather to follow.

8. In fair weather, when the mercury falls much and low, and thus continues for two or three days before the rain comes, then expect a great deal of wet, and probably high winds.

9. The unsettled motion of the mercury denotes uncertain and changeable weather.

BAROMETZ, a singular vegetable production, of which, under the name of Scythian lamb, many fabulous stories are told. It was said, among other things, to be part animal, part vegetable, and to have the power of devouring all other plants in its vicinity. It is, in reality, nothing but the prostrate hairy stem of a fern called *Aspidium Barometz*, which, from its procumbent position and shaggy appearance, looks something like a crouching animal, just as the hairy, tawny end of the *Trichomanes canariensis* looks like a hare's foot, whence its English name of *Hare's Foot Fern*. Darwin has some fanciful verses about the barometz, in his *Botanic Garden*, canto i. l. 279.

BARON, BARONY. Sir Henry Spelman (*Glossarium*, 1626, in voce *Baro*) regards the word *baron* as a corruption of the Latin *vir*: but it is a distinct Latin word, used by Cicero, for instance, and the supposition of corruption is therefore unnecessary. The Spanish word *varon*, and the Portuguese *barāo*, are slightly varied forms. The radical parts of *vir* and *baro* are probably the same, *b* and *v* being convertible letters, as we observe in the forms of various words. The word *barones* (also written *berones*) first occurs, as far as we know, in the book entitled *De Bello Alexandrino* (cap. 53), where barones are mentioned among the guards of Cassius Longinus in Spain; and the word may possibly be of native Spanish or Gallic origin. The Roman writers, Cicero and Persius, use the word *baro* in a disparaging sense; but this may not have been the primary signification of the word, which might simply mean *man*.

But the word had acquired a restricted sense before its introduction into England, and probably it would not be easy to find any use of it in English affairs, in which it denoted the whole male population, but rather some particular class, and that an eminent class.

Of these by far the most important is the class of persons who held lands of a superior by military and other honour-



able services, and who were bound to attendance in the courts of that superior to do homage, and to assist in the various business transacted there. The proper designation of these persons was the Barons. A few instances selected from many will be sufficient to prove this point. Spelman quotes from the *Book of Ramsey* a writ of King Henry I, in which he speaks of the barons of the honour of Ramsey. In the earliest of the Pipe Rolls in the Exchequer, which has been shown by its late editor to belong to the thirty-first year of King Henry I, there is mention of the barons of Blithe, meaning the great tenants of the lord of that honour, now called the honour of Tickhill. Selden (*Titles of Honour*, 4to. edit. p. 275) quotes a charter of William, Earl of Gloucester, in the time of Henry II, which is addressed 'Dapifero suo et omnibus baronibus suis et hominibus Francis et Anglis,' meaning the persons who held lands of him. The court itself in which these tenants had to perform their services is called to this day the Court Baron, more correctly the Court of the Barons, the Curia Baronum.

What these barons were to the earls, and other eminent persons whose lands they held, that the earls and those eminent persons were to the king: that is, as the earls and bishops, and other great land owners, to use a modern expression, had beneath them a number of persons holding portions of their lands for certain services to be rendered in the field or in the court, so the lands which those earls and great people possessed were held by them of the king, to whom they had in return certain services to perform of precisely the same kind with those which they exacted from their tenants; and as those tenants were barons to them, so were they barons to the king. But inasmuch as these persons were, both in property and in dignity, superior to the persons who were but barons to them, the term became almost exclusively, in common language, applied to them; and when we read of the barons in the early history of the Norman kings of England, we are to understand the persons who held lands immediately of the king, and had certain services to perform in return.

Few things are of more importance to those who would understand the early history and institutions of England, than to obtain a clear idea of what is meant by the word baron, as it appears in the writers on the affairs of the first two centuries and a half after the Conquest. They were *the tenants in chief of the crown*. But to make this more intelligible, we may observe that after the Conquest there was in actual or a fictitious assumption of absolute property in the whole territory of England by the king. The few exceptions in peculiar circumstances need not here be noticed. The king thus in possession granted out the greatest portion of the soil within a few years after the death of Harold and his own establishment on the throne. The persons to whom he made these grants were: 1. The great ecclesiastics, the prelates and the members of the monastic institutions, whom probably, in most instances, he only allowed to retain under a different species of tenure, what had been settled upon them by Saxon piety. 2. A few Saxons or native Englishmen who, in a few rare instances, were allowed to possess lands under the new Norman master. 3. Foreigners, chiefly Normans, persons who had accompanied the king in his expedition and assisted him in obtaining the throne: these were by far the most numerous class of the Conqueror's beneficiaries. Before the fourteenth or fifteenth year of his reign the distribution of the lands of England had been carried nearly to the full extent to which it was designed to carry it: for the king meant to retain in his own hands considerable tracts of land, either to form chaces or parks for field sports, to yield to him a certain annual revenue in money, to be as funds for the provision of his own household, or to be a reserve-fund out of which hereafter to reward services which might be rendered to him. These lands formed the demesne of the crown, and are what are now meant when we speak of the antient demesne of the crown.

When this was done a survey was taken of the whole, first of the demesne lands of the king, and next of the lands which had been granted out to the ecclesiastical corporations, or to the private persons who had received portions of land by the gift of the king. At the same time, the commissioners, to whom the making of this survey was entrusted, were instructed to inquire into the privileges of cities and boroughs, a subject with which we have not at present any concern. The result of this survey was entered of record in the book which has since obtained the name of *Domesday Book*, the most august as well as the most antient record of the realm, and for the early date, the extent, variety, and importance of the information which it contains, unrivalled, it is believed, by any record of any other nation. We see there *who* the people were to whom the king had granted out his lands, and at the same time *what* lands each of those people held. It presents us with a view which is nearly complete, of the persons who in the first twenty years after the Conquest formed the barons of England, and of the lands which they held; the progenitors of the persons who, in subsequent times, were the active and stirring agents in wresting from King John the great charter of liberties, and who asserted rights or claims which had the effect of confining the kingly authority of England within narrower limits than those which circumscribed the regal power in most of the other states of Europe.

The Indexes which have been prepared to *Domesday Book* present us with the names of about 400 persons who held lands immediately of the king. Some of these were exceedingly small tenures, and merged at an early period in greater, or through forfeitures or other circumstances were resumed by the crown. On the other hand *Domesday Book* does not present us with a complete account of the whole tenancies in chief, because 1. The four northern counties are for some reason not at present understood omitted in the survey; and 2. There was a creation of new tenancies going on after the date of the survey, by the grants of the Conqueror or his sons of portions of the reserved demesne. The frequent rebellions and the unsettled state in which the public affairs of England were in the first century after the Conquest, occasioned many resumptions and great fluctuations, so that it is not possible to fix upon any particular period and to say what was precisely the number of tenancies in chief held by private persons; but the number, before they were broken up when they had to be divided among co-heiresses, may be taken perhaps on a rude computation at about 300. In this the ecclesiastical persons who held lands in chief are not included.

When we speak of the king having *given* or *granted* these lands to the persons who held them, we are not to understand it as an absolute gift for which nothing was expected in return. In proportion to the extent and value of the lands given services were to be rendered, or money paid, not in the form of an annual rent, but as casual payments which the king had a right under certain circumstances to demand. The services were of two kinds: first military service, that is, every one of those tenants (*tenants* from *tene* to hold) was bound to give personal service to the king in his wars, and to bring with him to the royal army a certain quota of men corresponding in number to the extent and value of his lands; and secondly civil services, which were of various kinds, sometimes to perform certain offices in the king's household, to execute certain duties on the day of his coronation, to keep a certain number of horses, hounds, or hawks for the king's use, and the like. But, besides these honourable services, they were bound to personal attendance in the king's court when the king should please to summon them, to do homage to him (*homage* from *homo*, to acknowledge themselves to be his *homines*, or *barones*), and to assist in the administration of justice, and in the transaction of other business which was done in the court of the king.

We see in this the rude beginnings of the modern parliaments, assemblies in which the barons are so important a constituent. But before we enter on that part of the subject it is proper to observe, that among the great tenants of the crown there was much diversity both of rank and property. We shall pass over the bishops and other ecclesiastics, only observing, that when it is said that the bishops have seats in parliament in virtue of the baronies annexed to their sees, the meaning of the expression is, that they sit there as other lay homagers or barons of the king, as being among the persons who held lands of the crown by the services above mentioned; which is correct, as far as parliament is regarded as a court for the administration of justice, but doubtful so far as it is an assembly of wise men to advise the king in matters touching the affairs of the realm. Amongst the other tenants we find some to whose names the word *vicecomes* is annexed. On this little has been said by the writers on English dignities, and it is doubtful whether it is used in *Domesday* as an hereditary title, or only as a title of office answering to the present *sheriff*. But we find some who have indisputably a title, in the proper sense of the word, annexed to their names, and which we know to

have descended to their posterity. These are the *comites* of *Domesday Book*, where, by the Latin word *comes*, they have represented the *earl* of the Saxon times; and as these persons were raised above the other tenants in dignity, so were they, for the most part, distinguished by the greater extent of the lands held by them. Among those to whose names no mark of distinction is annexed, there was also great diversity in respect of the extent of territory granted to them. Some had lands far exceeding the extent of entire counties, while others had but a single parish or township, or, in the language introduced at the Conquest, but a single manor, or two adjacent manors, granted to them.

All these persons, the earls included, were the barons, or formed the baronage, of England. Whether the tenancy were large or small, they were all equally bound to render their service in his court when the king called upon them. The diversity of the extent of the tenure affords a plausible discriminatory circumstance between two classes of persons who appear in early documents—the greater and the lesser barons; but a better explanation of this distinction may be given. In the larger tenancies, the persons who held them granted out portions to be held of them by other parties upon the same terms on which they held of the king. As they had to furnish a quota of men when the king called upon them, so they required their tenants to furnish men equipped for military service proportionate to the extent of the lands which they held, when the king called upon them. As they had to perform civil services of various kinds for the king, so they appointed certain services of the same kind to be performed by their tenants to themselves. As they had to do homage from time to time to the king, and to attend in his court for the administration of justice and for other business touching the common interest, so they required the presence of their tenants to acknowledge their subjection and to assist in the administration of that portion of public justice which the sovereign power allowed the great tenants to administer. The castles, the ruins of which exist in so many parts of the country, were the seats of these great tenants, where they held their courts, received the homage, and administered justice, and were to the surrounding homagers what Westminster Hall, a part of the court of the early kings of England, was to the tenantry in chief. The Earl of Chester is said to have thus subinfeuded only eight persons in the vast extent of territory which the Conqueror granted to him. These had, accordingly, each very large tracts, and they formed, with four superiors of religious houses, the court, or, as it is sometimes called, the parliament of the Earls of Chester. These persons are frequently called the barons of that earldom; but the number of persons thus subinfeuded was usually greater, and the tenancies consequently smaller. They were, for the most part persons of Norman origin, the personal attendants, it may be presumed, of the great tenant. There is no authentic register of them, as there is of the tenants in chief; but the names of many of them may be collected from the charters of their chief lords, to which they were, in most instances, the witnesses. These, it is presumed, constitute the class of persons who are meant by the Lesser Barons, when that term is used by writers who aim at precision.

Many of these Lesser Barons, or Barons of the Barons, became the progenitors of families of pre-eminent rank and consequence in the country. For instance, the posterity of Nigellus, the Baron of Halton, one of the eight of the county of Chester, through the unexpected extinction of the male posterity of Ilbert de Laci, one of the greatest of the tenants in chief beneath the dignity of an earl, and whose castle of Pontefract, though in ruins, still shows the rank and importance of its early owners, became possessed of the great tenancy of the Lacis, assumed that name as the hereditary distinction, married an heiress of the Earls of Lincoln, and so acquired that earldom; and when at length they ended in a female heiress, she was married to Thomas, son of Edmond, Earl of Lancaster, son of King Henry III. The ranks, indeed, of the tenants in chief, or greater barons, were replenished from the class of the lesser barons; as in the course of nature cases arose in which there was only female issue to inherit. But even their own tenancies were sometimes so extensive, that they were enabled to exhibit a miniature representation of the state and court of their chief: they affected to subinfeud; to have their tenants doing suit and service; and in point of fact, many of the smaller manors at the present day are but tenures under the lesser barons, who held of the greater barons, who held of the king. The process of subinfeudation was checked by a wise statute of King Edward I., who introduced many salutary reforms, passed in the eighteenth year of his reign, commonly called the statute *Quia Emptores, &c.*, which directed that all persons thus taking lands, should hold them, not of the person who granted them, but of the superior, of whom the granter himself held.

The precise amount and precise nature of the services which the king had a right to require from his barons in his court, is a point on which there seems not to be very accurate notions in some of the writers who have treated on this subject, and a similar want of precision is discernible in the attempt at explaining how to the great court baron of the king were attracted the functions which belonged to the deliberative assembly of the Saxon kings, and the *Commune Concilium* of the realm, the existence of which is recognized in charters of some of the earliest Norman sovereigns. The fact, however, seems to be admitted by all who have attended to this subject, that the same persons who were bound to suit and service in the king's court constituted those assemblies which are called by the name of parliaments, so frequently mentioned by all our early chroniclers, in which there were deliberations on affairs touching the common interest, and where the power was vested of imposing levies of money to be applied to the public service. It is a subject of great regret to all who wish to see through what processes and changes the great institutions of the country have become what we now see them, that the number of public records which have descended to us from the first hundred and fifty years after the conquest is so exceedingly small, and that those which remain afford so little information respecting this most interesting point of inquiry.

There is, however, no reasonable doubt, that the parliament of the early Norman kings did consist originally of the persons who were bound to service in the king's court by the tenure of their lands. But when we come to the reign of King Edward I., and obtain some precise information respecting the individuals who sat in parliament, we do not find that they were the whole body of the then existing tenantry in chief, but rather a selection from that body, and that there were among those who came by the king's summons, and not by the election and deputation of the people, some who did not hold tenancies in chief at all. To account for this, it has been the generally received opinion, that the increase of the number of the tenants in chief (for when a fee fell among co-heiresses it increased the number of such tenants) rendered it inconvenient to admit the whole, and especially those whose tenancies were sometimes only the fraction of the fraction of the fee originally granted, and that the barons and the king, through a sense of mutual convenience, agreed to dispense with the attendance of some of the smaller tenants. Others have referred the change to the latter years of the reign of King Henry III.; when the king, having broken the strength of the barons at the battle of Evesham, established a principle of selection, summoning only those among the barons whom he found most devoted to his interest. It is matter of just surprise, that points of such importance as these in the constitutional history of the country should be left to conjecture; and especially, as from time to time claims are presented to parliament by persons who assert a right to sit there as being barons by tenure: that is, persons who hold lands immediately of the king, and whose ancestors, it is alleged, sat by virtue of such tenure. The committee of the House of Lords, which sat during several sessions of parliament to collect from chronicle record, and journal every thing which could be found touching the dignity of a peer of the realm, made a very voluminous and very instructive Report in 1819. This has been followed by reports on the same subject by other committees. They all confess that great obscurity rests upon the original constitution of parliament, and suppose the probability that there may still be found among the unexamined records of the realm something which may clear away at least a portion of the obscurity which rests upon it. [See LORDS, HOUSE OF, and PARLIAMENT.]

We are now arrived at a time when the word *baron* acquired a sense still more restricted than that which has hitherto belonged to it. Later than the reign of Edward II. we seldom find the word *baron* used in the chronicles to designate the whole of that formidable body who were next

in dignity to the king himself, who formed his army and his legislative assembly, and who forced the monarch to yield points of liberty either to themselves as a class, or to the whole community of Englishmen. The counts or earls, from this time stand out more prominently as a distinct order. There were next introduced into that assembly persons under the denomination of dukes, marquesses, and viscounts; to all of whom was given a precedence before those barons who had not any dignity, strictly so called, annexed to the service which they had to render in parliament. The baron became the lowest denomination in the assembly of peers, possessing the same rights of discussing and voting with any other member of the house, but remaining destitute of those honorary titles and distinctions the possession of which entitled others to step before him. The term also ceased to be applied to those persons who, possessing a tenancy in chief, were yet not summoned by the king to attend the parliament; and the right or duty of attendance, from the time of King Edward I., has been founded, not, as antiently, upon the tenure, but on the writ which the king issued commanding their attendance.

Out of this has arisen the expression *barons by writ*. The king issued his writ to certain persons to attend in parliament, and the production of that writ constituted their right to sit and vote there. Copies of these writs were taken, and are entered on what is called the close roll at the Tower. The earliest are in the latter part of the reign of King Henry III., in the forty-ninth of his reign, when the king was a prisoner in the hands of Simon de Montfort, who did what he pleased in the king's name. There are many such writs existing in the copies taken of them, of the reign of Edward I., and all subsequent kings, down to the present time. They are addressed to the archbishops and bishops, the prior of Saint John of Jerusalem, many abbots and priors, the earls and peers of the higher dignities as they were introduced into the peerage, and to a number of persons by their names only, as William de Vesey, Henry de Cobham, Ralph Fitzwilliam, William la Zouch, and the like, portions of the baronage whom the king chose to call to his councils. Upon this the question arises, whether when a person who was a baron by tenure received the king's writ to repair to the parliament, the receipt of the writ, and obedience to it, created in him a dignity as a lord of parliament which adhered to him during his life, and was transmitted to his heir. Upon this question the received opinion undoubtedly has been, that a heritable dignity was created, that once a baron, by sitting under authority of the king's writ, always a baron, and that the barony would endure as long as there were heirs of the body of the person to whom the king's writ had issued. Upon this, the received opinion, there have been many adjudications of claims to dignities, and yet the Lords' Committee on this subject express very strong doubts respecting the doctrine, and contend that there are persons to whom the king's writ issued, and who took their seat accordingly, to whose heirs similar writs never went forth, though there was no bar from nonage, fatuity, or attainder. On the other hand, there is the strong fact, that we do find by the writs of summons, that they were addressed to the several members of many of the great families of England, as they rose in successive generations to be the heads of their houses: that, when it happened that a female heiress occurred, her issue was not unfrequently set in the place in parliament which her ancestors had occupied, and that when the new mode arose in the time of Richard II., of creating barons by patent, in which a right was acknowledged in the posterity of the person so created, the antient barons who had sat by virtue of the king's writ to them and their ancestors did not apply for any ratification of their dignity by patent, which they would have done had they not conceived that it was a heritable dignity, as secure as that granted by the king's patent.

The doubt of the Lords' Committees, however, shows that this is one of the many points touching the baron on which there is room for question. The practice, however, has been hitherto to admit that proof of the issuing of the writ, and of obedience to it, by taking a seat in parliament, or what is technically called proof of sitting, entitles the person who is heir of the body of a person so summoned to take his seat in parliament in the place which his ancestor occupied. Nevertheless, it would seem, from the report of the Lords' Committees, that in cases in which one person only of a family has been summoned at some remote period, and none of his known posterity near his time, this was no creation of the dignity of a baron, or of a peer of parliament, which could be claimed at this distance of time by any person however clearly he might show himself to be the heir of the body of the person so summoned. But that, in cases in which the writ and the sitting can be proved respecting several persons in succession in the same line, as in Mauley, Roos, Furnival, Clifford, and many other families, there is an heritable dignity created, liable to no defeazance, and that this dignity may be claimed by any person who at this day can show himself to be the heir of the body of the person to whom the original writ issued.

In interpreting the phrase *heir of the body*, the analogy of the descent of the corporeal hereditaments in the feudal times is followed. That is, if a person die seised of the dignity of baron, and leave a brother and an only child, a daughter, the daughter shall inherit in preference to the brother, though the dignity has been transmitted from some person who is ancestor to them both. This fact clearly shows how close a connexion there is between the dignity and the lands, the descent of both being regulated by the same principle. The consequence of this principle is, that through a portion of the baronage there has been an introduction of new families into the peerage without the sanction of the crown; for the heiress of one of these baronies may now bestow herself in marriage at her pleasure: and though it is not held that the husband can claim the benefit of the tenancy by courtesy principle (though doubts are entertained on this point), yet, the issue of the husband may undoubtedly, whoever he may be, take his place in parliament in the seat which his mother would have occupied had she been a male. Practically, the effect of this upon the composition of the House of Peers has been very small indeed.

The case of co-heiresses demands a distinct notice, because it will lead to the explanation of a phrase which is often used by persons who seem not to have very distinct notions concerning what is implied by it. Lands may be divided, but a dignity is by its very nature indivisible. Thus, if the representative of one of the antient barons of parliament die, leaving four daughters and no son, his lands may be divided in equal portions among them, and would be so divided according to the principle of the feudal system. But the dignity could not be divided, and as the principle of that system was against any distinction among coheiresses, (reserving the occurrence in the course of nature of persons dying leaving no son but several daughters, to be the means of preventing the too great accumulation of lands in the same person, and of breaking up from time to time the great tenancies,) it made no provision that either the *caput baroniae*, or a dignity that was indivisible, should descend to the eldest, or any daughter in preference to her sisters. It therefore fell into *abeyance*. [See ABEYANCE.] It was not extinguished or destroyed, but it lay in a sort of silent partition among the sisters, and in that dormant, but not dead state, it lay among the posterity of the sisters. But if three of the four died without leaving issue, or if after a few generations the issue of three of them became utterly extinct, the barony would then revive, and the surviving sister, if alive, or the next heir of her body, would become entitled to the dignity, and might, on proof of the necessary facts, claim a writ of summons as if there had been no suspension. Again, it is a part of the royal prerogative to *determine an abeyance*, that is, the king may select one of the daughters, and give to her the place, state, and precedency which belonged to her father; and then the barony will descend to the several heirs in succession of her body, as entirely as if there had never been any state of abeyance. But this does not interfere with the rights of the other co-heirs, who, and whose posterity, remain in precisely the same position in which they stood before the king determined the abeyance in favour of a particular branch. In this way the barony of Clifford, which has several times fallen into abeyance, has been lately given by the king to a co-heir. The same was the case with the baronies of Roos and Ferrers, and indeed it is in a great measure to the exercise of this prerogative of the crown that we owe the presence in the House of Peers of barons who take their seats at the head of the bench, and date their sittings from the fourteenth and thirteenth centuries.

The principle of the feudal law, which was favourable to the claims of females, was fraught with ruin to noble houses. The great family which springs from Hugh Capet, and a few other great families of the Continent, have had the

address to escape from the operation of the principle by availing themselves of what is called the Salic Law; and to this is owing that they still hold the rank in which we now see them, a thousand years after they first became illustrious. This must have been early perceived in England, and it was probably this consideration which led to the introduction of a class of barons, the descent of whose dignity should not be regulated by the principle of the feudal descent of hereditaments, but should be united inseparably with the male line of persons issuing from the stock of the original grantee. This innovation is believed to have first taken place in the reign of King Richard II., who in his eleventh year created John Beauchamp of Holt a baron, not merely by writ of summons to parliament, but by a patent, in which it was declared that he was advanced to the state, style, and dignity of a baron, and that the same state, style, and dignity should descend to the *male heirs* of his body. Thus and at this time the class of *barons by patent* arose. The precedent thus set was, with very few exceptions, followed in the subsequent reigns; and by far the great majority of persons who now occupy the barons' bench in parliament are the male representatives of persons on whom the dignity has been conferred, accompanied by a patent, which directs the course of its descent to be in the male heirs for the time being of the original grantee; and that should it ever happen that they are exhausted, the dignity becomes extinct.

It is unnecessary to enter into any examination of the privileges of the barons, which in no respect differ from those of the other component parts of the House of Peers. [See PEERS OF THE REALM.]

The principal writers upon the subject of this article are, John Selden, in his work entitled *Titles of Honour*, first published in 1614; Sir Henry Spelman, in his work entitled *Archæologus, in modum Glossarii*, folio, 1626; Sir William Dugdale, in his *Baronage of England*, 3 volumes folio, 1675 and 1676; and in his *Perfect Copy of all Summonses of the Nobility to the Great Councils and Parliament of this Realm, from the 49th of Henry III., until these present times*, folio, 1685; *Proceedings, Precedents, and Arguments on Claims and Controversies concerning Baronies by Writ, and other Honours*, by Arthur Collins, Esq., folio, 1734; *A Treatise on the Origin and Nature of Dignities or Titles of Honour*, by William Cruise, 8vo., 2nd edit., 1823; *Report on the Proceedings on the Claim to the Barony of Lisle, in the House of Lords*, by Sir N. H. Nicolas, 8vo., 1829. But the most complete information on this subject is contained in the printed *Report from the Lords' Committees, appointed to search the Journals of the House, and Rolls of Parliament, and other Records and Documents, for all matters touching the Dignity of a Peer of the Realm.*

The word *barony* is used in the preceding article only in its sense of a dignity inherent in a person: but the antient law-writers speak of persons holding lands by *barony*, which means by the service of attending the king in his courts as barons. The research of the Lords' Committees has not enabled them to trace out any specific distinction between what is called a tenure by barony and a tenure by military and other services incident to a tenancy in chief. The Hiltons in the north, who held by barony, have been frequently called the Barons of Hilton, though they had never, as far as is known, summons to parliament, or enjoyed any of the privileges which belong to a peer of the realm. Burford in Shropshire is also called a barony, and its former lords, the Cornwalls, who were an illegitimate branch of the royal house of England, were called, in instruments of authority, barons of Burford, but had never summons to parliament nor privileges of peerage. *Barony* is also sometimes, but rarely, used in England for the lands which form the tenancy of a baron, and especially when the baron has any kind of territorial addition to his name taken from the place, and is not summoned merely by his christian and surname. This seems, however, to be done rather in common parlance than as if it were one of the established local designations of the country. The *head of a barony* (*caput baroniæ*) is, however, an acknowledged and well-defined term. It designates the castle or chief house of the baron, the place in which his courts were held, where the services of his tenants were rendered, and where, in fact, he resided. The castles of England were heads of baronies, and there was this peculiarity respecting them,—that they could not be put in dower, and that if it happened that the lands were to be partitioned among co-heiresses, the head of the barony was not to be dismembered, but to pass entire to some one of the sisters.

Barony is used in Ireland for a subdivision of the counties: they reckon 252 of the districts called baronies. Barony here is equivalent to what is meant by hundred or wapentake in England.

It remains to notice three peculiar uses of the word baron:—

1. The chief citizens of London, York, and of some other places in which the citizens possess peculiar franchises, are called in early charters not unfrequently by the name of 'the *barons*' of the place. This may arise either from the circumstance of the persons only being intended who were the chief men of the place; or that they were, in fact, barons, homagers of the king, bound to certain suit and service to the king, as it is known the citizens of London were and still are.

2. The *Barons of the Cinque Ports* are so called, probably for the same reason that the citizens of London and of other privileged places are so called. The Cinque Ports, which were Hastings, Dover, Hythe, Romney, and Sandwich (to which afterwards Rye and Winchilsea were added), being ports opposite to France, were regarded by the early kings as places of great importance, and were consequently put under a peculiar governance, and endowed with peculiar privileges. The freemen of these ports were barons of the king, and they had the service imposed upon them of bearing the canopy over the head of the king on the day of his coronation. Here was the feudal service which marked them as persons falling within the limits of the king's barons. Those sent of themselves to parliament, though sitting in the lower house, might be expected to retain their appellation of barons.

3. The *Barons of the Exchequer*. The four judges in that court are so called, and one of them the *Chief Baron*. The court was instituted immediately after the Conquest, and it is probable that the judges were so denominated from the beginning. They are called barons in the earliest Exchequer record, namely, the Pipe Roll of 31 Henry I. It may here mean no more than the *men*, that is, the chief men of the Exchequer. For their functions and duties see EXCHEQUER.

BA'RONAGE. This term is used, not so much to describe the collective body of the barons in the restricted sense which now belongs to the word as signifying a component part of the hereditary nobility of England, but the whole of that nobility taken collectively, without regard to the distinction of dukes, marquesses, earls, viscounts, and barons, all of whom form what is now sometimes called the baronage.

In this sense the term is used in the title of one of the most important works in the whole range of English historical literature, for the sake of giving a short notice of which, we have introduced an article under this word. We allude to *The Baronage of England*, by Sir William Dugdale, who was the Norroy King at Arms, and one of the last survivors of those eminent antiquarian scholars who, in the seventeenth century, raised so high the reputation of England for that particular species of learning.

Sir William Dugdale was the author of many other works, but his history of the baronage of England is the one to which reference is more frequently made; and there is this peculiarity belonging to his labours, that the Baronage is quoted by all subsequent writers as a book of the highest authority; and it has, in fact, proved a great reservoir of information concerning the families who, from the beginning, have formed the baronage of England, from which all later writers have drawn freely.

The first volume was published in 1675; the second and third, which form together a volume not so large as the first, in 1676. The work professes to contain an account of all the families who had been at any period barons by tenure, barons by writ of summons, or barons by patent, together with all other families who had enjoyed titles of higher dignity, beginning with the earl of the Saxon times.

It was an undertaking of infinite labour, but Dugdale was an indefatigable man. Nothing like it had before appeared. Accounts of the higher orders of the English nobility had been given before his time in the works of Milles, Brooke, and Vincent, but these accounts are excessively meagre, scarcely, in any instance, going beyond the statement of genealogical particulars, or the most prominent facts in the lives of the persons who had held those dig-

nies. But Sir William Dugdale has collected from the chronicles, from the chartularies of religious houses, with which he became acquainted while preparing his great work on the history of the monasteries, from the rolls of parliament, in his time only to be perused in manuscript, and from the public records, which he could consult only in the public repositories, or in the extracts made from them by his fellow-labourers in historical research, and finally from the wills in the various ecclesiastical offices throughout the kingdom, the particulars of the lives of the most eminent men of our nation. Without pretending to the graces of language, and with the introduction of less of political or moral reflection than perhaps might be desired, he has produced a work which is not only rich beyond precedent in the most authentic information, but which is read with interest and pleasure by all persons who have any tincture of the spirit of historical inquiry. But while he has thus clothed and almost animated the dry figures of the earlier writers on the higher nobility of the realm, the accounts which he has given of the persons who form the lower class, the barons, in the stricter sense, whether by tenure, writ, or patent, are entirely his own. Nothing before his time had been done to collect their names, to show their origin, or to display their illustrious achievements. This part of his work, that is, by far the larger portion of it, is pre-eminently his own; and the best tribute to its excellence is the fact to which we have alluded above, that his accounts of these illustrious persons are considered, by all subsequent writers, as genuine and authentic as if he stood in the position of a contemporary chronicler, and that so few persons have since arisen who have shown themselves able to make any addition of much value to the accounts which he has left.

Not the least merit of the work is the careful reference to authorities, which renders it a most valuable book, not only to the student in the family antiquities of the English nation,—not only to those who are delighted to read of the actions of the eminent persons of the English nation in the days of chivalry, in the times of the Crusades, and in the wars with France and Scotland,—but to the practical man, who undertakes to prosecute claims to baronies or other dignities, of which there is always one or more before parliament, and who finds here the reference to the documents which it is necessary to produce in the prosecution of such claims.

This work contains some defects in respect of the general plan, in which we find no sound criterion by which to determine the claims to admission among those who are called barons by tenure. The arrangement also admits of much improvement, and there are occasionally mistakes and misrepresentations in the minuter details. Still nothing has yet superseded it; but he who shall undertake the work of re-modelling, correcting, improving, and continuing it to the present day, will enter on his duty with advantages which his predecessor did not enjoy. Some of the chief authorities on which Dugdale relied have been printed by the Board of Commissioners on the Public Records, and are now easily accessible to the historical inquirer, who formerly was obliged to be content with slight inspections in the offices in which the originals are deposited, or to depend on transcripts which might not always be exact.

One passage in the preface to the Baronage contains a striking truth: 'As this historical discourse will afford at a distance some, though but dim, prospect of the magnificence and grandeur wherein the most antient and noble families of England did heretofore live, so will it briefly manifest how short, uncertain, and transient earthly greatness is; for of no less than two hundred and seventy in number, touching which this first volume doth take notice, there will hardly be found above eight which do to this day continue; and of those not any whose estates, compared with what their ancestors enjoyed, are not a little diminished; nor of that number, I mean two hundred and seventy, above twenty-four who are by any younger male branch descended from them, for aught I can discover.'

BARONET, an English name of dignity, which in its etymology imports a Little Baron. But we must not confound it with the Lesser Baron of the middle ages [see BARON], with which the rank of baronet has nothing in common; nor again with the banneret of those ages [see BANNERET]; though it does appear that in some printed books, and even in contemporary manuscripts, the state and dignity of a banneret is sometimes called the state and dignity of a baronet, by a mere error, as Selden promptly asserts (*Titles of Honour*, p. 354), of the scribe.

The origin of this rank and order of persons is quite independent of any previous rank or order of English society. It originated with King James I., who, being in want of money for the benefit of the province of Ulster in Ireland, hit upon the expedient of creating this new dignity, and required of all who received it the contribution of a sum of money, as much as would support thirty infantry for three years, which was estimated at 1095*l.*, to be expended in settling and improving the province of Ulster.

The principle of this new dignity was to give rank, precedence, and title without privilege. He who was made a baronet still remained a commoner. He acquired no new exemption or right to take his seat in any assembly in which he might not before have been seated. What he did acquire we can best collect from the terms of the patent which the king granted to all who accepted the honour, to them and the heirs male of their bodies for ever: 1. Precedence in all commissions, writs, companies, &c., before all knights, including knights of the bath and bannerets, except such knights banneret as were made in the field, the king being present; 2. Precedence for the wives of the baronet to follow the precedence granted to the husband; 3. Precedence to the daughters and younger sons of the baronet before the daughters and younger sons of any other person of whom the baronet himself took precedence; 4. The style and addition of *Baronet* to be written at the end of his name with the prefix of *Sir;* 5. The wife of the baronet to be styled *Lady*, *Madam*, or *Dame*. It was stipulated on the part of the king, that the number of baronets should never exceed two hundred; and that, when the number was diminished by the natural process of extinction of families, there should be no new creations to supply the places of those extinct, but that the number should go on decreasing. Further, the king bound himself not to create any new order which should lie between the baron and the baronet.

Another distinction was soon after granted to them. A question arose respecting precedency between the newly-created baronets and the younger sons of viscounts and barons, which the king disposed of by his own authority, in favour of the latter; and in the same instrument in which he declared the royal pleasure in this point, he directed that the baronets might bear, either on a canton or in an escutcheon on their shield of arms, the arms of Ulster, which, symbolical it seems of the lawless character of the inhabitants of that province, as is set forth in the preamble of the baronet's patent, was a bloody hand, or in the language of heraldry, a hand gules in a field argent. And further, the king 'to ampliate his favour, this dignity being of his majesty's own creation, and the work of his hands,' did grant that every baronet, when he had attained the age of twenty-one years, might claim from the king the honour of knighthood; that in armies they should have place near about the royal standard; and lastly, that in their funeral pomp they should have two assistants of the body, a principal mourner, and four assistants to him, being a mean betwixt a baron and a knight.

Such was the original institution of the order. To carry the king's intentions into effect, and especially to secure the payment of the money, commissioners were appointed to receive proffers for admission into the order. The instructions given to them throw further light on the original constitution of this body. They were to treat with none but such as were men of quality, state of living and good reputation worthy of the same, and they were to be descended of at least a grandfather by the father's side that bore arms; they were to be also persons possessed of a clear yearly revenue of 1000*l.*: and to avoid the envy and slander, as if they were men who had purchased the honour, the commissioners were to require an oath of them that they had not directly or indirectly given any sum of money for the attaining the degree and pre-eminence, except that which was necessary for the maintenance of the appointed number of soldiers.

The earliest patents bear date on May 22, 1611, on which day Sir Nicholas Bacon, of Redgrave, in Suffolk, knight, was admitted the first of the new order; and with him seventeen other knights and gentlemen of the first quality beneath the peerage. On the 29th of June following, fifty-four other patents were tested, and four more in September. The doubt respecting the precedents, and certain scruples

which arose respecting this exercise of the royal prerogative, seem to have occasioned a relaxation in the issue of patents, for no more were issued till the 25th of November, 1612, when fifteen other gentlemen were introduced into the order, making in the whole ninety-one. At this number they remained for some years; and it was not till 1622, a little before the death of King James, that the number of two hundred was completed

In its more essential points, this order has undergone no modifications since its establishment. But the following alterations have taken place.—1 There has been no adherence to the number two hundred, which by the original compact was to be the limit of the number of patents issued Even the founder himself did not adhere to this part of the contract, for at his death two hundred and five patents had been issued. The excuse was that several of the baronets had been advanced to higher dignities, and that thus vacancies were created, which the king was at liberty to fill But his successor King Charles I., issued patents at his pleasure; and the number issued before his death amounted to four hundred and fifty-eight Later kings have not thought themselves bound by this clause of the original compact, and the number of members of this order is now understood to have no other limit than the will of the king 2 In the time of King Charles II the custom was to remit the payment of the money for the support of the soldiers, and a warrant for this remission is now always understood to accompany the grant of a patent of baronetcy 3 The rule of requiring proof of coat armour for three descents has in numerous instances not been insisted on But with these variations, the order has remained unchanged

Various works have been published containing accounts of the families of England who belong to this order The first of these was published in 1720, entitled *The Baronetage of England*, the author of which was Arthur Collins, whose similar work on the *Peerage of England* is held in high estimation It was his intention to give an account of all the families who had ever possessed this distinction, whether then existing or extinct Two volumes were published, containing the first 152 families, but the work was not continued In 1727 appeared another *Baronetage*, in 3 volumes containing valuable accounts of the families of all baronets then existing A third *Baronetage*, usually called Wotton's, appeared in 1741, in 5 large volumes, 8vo This is indisputably the most carefully compiled, the fullest, and the best work of the kind Another appeared in 1775, in 3 volumes 8vo and about the beginning of the present century appeared Mr Betham's account of the families of the then existing baronets, in 5 vols 4to.

Baronets of Nova Scotia—As King James I established the order of English baronets for the encouragement of the planting and settling the province of Ulster, so he designed to establish an order of baronets in Scotland for the encouragement of the planting and settling of Nova Scotia He died however before any proceedings had been taken. His successor adopted the scheme, and in 1625 granted certain tracts of land in Nova Scotia to various persons, and with them, the rank, style, and title of baronets of that province, with precedency analogous to the precedency given to the baronets of England Some additional privileges were given them, as that the eldest son of a baronet of Nova Scotia, during the lifetime of his father, might claim the honour of knighthood; and that the baronet might wear a ribbon and medal, with badge and insignia of the order The addition to the coat-armour of the baronet was the arms of the province of Nova Scotia.

It was proposed that the number should be limited to 150. The first was Sir Robert Gordon of Gordonstown There were frequent creations of this dignity till the union with Scotland in 1707, when the creations ceased

Baronets of Ireland were instituted by King James I in 1620, for the same purpose with the baronets of England The money was paid into the Irish Exchequer. The first person who received the dignity was either Sir Dominick Sarsfield, the Chief Justice of the Common Pleas in Ireland, or Sir Francis Blundell, the Secretary of State

BARO'NIUS, CÆSAR, an eminent ecclesiastical writer, and cardinal presbyter of the Roman Church, was born 31st October, 1538, at Sora, an episcopal town of the kingdom of Naples. His father was Camillo Baronio, his mother Porzia Febonia, both of noble families. He received his first education at Veroli, and afterwards studied divinity and law at Naples; but the troubles of that kingdom induced his father to remove him in 1557 to Rome, where he continued those studies under Cæsar Costa, afterwards archbishop of Capua. Here he placed himself under the discipline of St Philip de Neri, founder of the congregation of the Oratory, by whom, after he was ordained priest, he was attached in 1561 to the congregation of the church of St John the Baptist in that city. He continued there till 1576, when he was transferred to the church of Santa Maria della Vallicella In 1593, St. Philip de Neri, having laid down the office of superior of the congregation of the Oratory, appointed Baronius his successor, and Pope Clement VIII. not only approved the choice, but some time after made Baronius his confessor, advanced him to the dignity of cardinal, June 5th, 1596, and finally made him librarian of the apostolic see. Upon the death of Clement VIII., in 1605, Baronius had thirty votes in the conclave for his election as pope, but the Spaniards opposed his election on account of his treatise *De Monarchia Siciliæ*, in which he had argued against the claim of Spain to that kingdom Baronius's intense application to study weakened his constitution, and he died at Rome, June 30th, 1607, aged sixty-eight years and eight months, and was interred in the church of Santa Maria della Vallicella, on the 15th of July

Baronius was a man of sincere piety, great probity, learning, and extensive reading, who laboured with success in the service of the church to which he belonged, and in clearing up ecclesiastical antiquity He undertook his most celebrated work, his *Annales Ecclesiastici*, when he was thirty years of age, and continued for thirty years collecting and digesting his materials The first volume of this work, which contains the first century after Christ, was published in 1588; the twelfth and last, which concludes with the year 1198, was printed in 1607, under the pontificate of Paul V. These twelve volumes contain the history of the twelve first ages of the church Baronius left materials for three more volumes which were used by Raynaldus (Odorico Rinaldi) in his Continuation of Baronius's Annals

Mazzuchelli enumerates nineteen different works of Baronius in print and manuscript The following are the most important —1 *Martyrologium Romanum restitutum, Gregorii XIII jussu editum cum notationibus Cæsaris Baronii*, fol Rom 1586 4to Ven 1587 Antw 1589, Ven. 1597, Rom 1636 2 *Annales Ecclesiastici*, fol Ven 1588-1607 A second edition was published, fol Ven 1595 1599, followed by others progressively from the different presses of Cologne Antwerp Mentz, Amsterdam, and Venice. The best edition of all is that by Odorico Rinaldi, in 19 vols. fol Lucca, 1738 1746 followed by an *Index Universalis*, 3 vols fol Lucca 1757 1759 and accompanied by *Annalium Ecclesiasticorum Cæs Baronii Apparatus*, 1 vol. fol Lucca, 1740, and by Rinaldi's Continuation (*Annales Ecclesiastici ab anno MCXCVIII ubi desinit Cardinalis Baronius*), 15 vols fol 1747 1756 An abridgment of Baronius's first century of his Annals (*Ridotti in Compendio*), by Francesco Panigarola appeared in 4to Ven 1593, and an abridgment of the whole, in Latin, by Henri Spondanus, at Paris, fol 1612, and in numerous subsequent editions An epitome of the Annals in Arabic, was published at Rome under the auspices of the Propaganda Society, 3 vols 4to 1653 1671 Two or three more abridgments in other languages, are noticed by Mazzuchelli 3. *Tractatus de Monarchia Siciliæ* (originally inserted in vol xi of the Annals), 8vo Paris, 1609 4. *Historica Relatio de Legatione Ecclesiæ Alexandrinæ ad Apostolicam Sedem* 8vo. Colon. 1598, respecting the reunion of the Church of Alexandria to the See of Rome, which did not last long, reprinted in 1600 5 *Historica Relatio de Ruthenorum origine, eorumque miraculosa conversione*, 8vo. Colon 1598; republished, in French, by Marc Lescarbot, 8vo Par. 1599. 6. *Paræneses ad Rempublicam Venetam*, 4to Rom ex typ. Vatic. 4to. 1606, written on occasion of the interdict of Venice 7 *Contra Senensis. Rempublicam Venetam Votum*, not published, but containing Baronius's opinion in the Consistory. 8 *Vita S Ambrosii, archiepiscopi Mediolanensis*, inserted in vol. vi. of St. Ambrose's works, fol. Rom. 1580, the MS. is preserved in the Ambrosian library at Milan. 9. *Vita S. Gregorii Nazianzeni*, printed in vol. ii., for the month of May, of the *Acta Sanctorum* of the Bollandists. 10. *De Origine Oratorii*; MS. in the Vallicellana library. 11. *Sermones Sacri de Tempore, et de Sanctis*. 12. *Relatio Concilii Arelatensis*; MS. in the Barberini library.

The great work of Baronius has been severely criticised by Holstenius, Isaac Casaubon, Comber, and others [see BASNAGE, SAMUEL], on account of its alleged errors and mistakes; but these, perhaps, are not more numerous than are to be expected in a work of such great extent. In relation to controversies, he was always a party writer; but, after all, his work is one of the most useful and important on the subject, and Baronius is by some styled the father of ecclesiastical history. Besides Rinaldi, there are two other continuations of Baronius's Annals: one to the year 1572, by Bzovius, 9 vols. fol. 1616-1672; the other extending to 1639, 2 vols. fol. Paris, 1639.

(See *Vita Cæsaris Baronii*, auctore Hieron. Barnabeo Perusino, 4to. Rom. 1651; *La Vie de César Card. Baronius*, par le Père Turien le Fevre, 12mo. Douay, 1668; Mazzuchelli, *Gli Scrittori d'Italia*, fol. Brescia, vol. ii. pt. i. p. 387; Moréri, *Diction. Historique*, fol. 1759, vol. ii. p. 131.)

BARONY. [See BARON.]

BAROSCOPE, the *perceiver of weight*, is a term which has sometimes been applied to the barometer. It may, however, be well applied to all such barometers as, from badness in their principles or construction, show a change of the air's weight, without furnishing any good means of measuring it. Such are the conical and Hooke's barometer. The human body is sometimes, to a certain extent, a baroscope.

BAROUSSE, a valley in the Department of Hautes Pyrénées (High Pyrenees) in France; one of those four which make up the district of *les quatre vallées*, formerly included in Armagnac. [See ARMAGNAC.] It is a cold country, but affords good pasturage; and its fine forests yield timber for the carpenter and the shipwright. It contains eighteen parishes; and in 1762 Expilly stated the number of households (*feux*) at 1373, which, allowing five persons to a household, would give 6865 persons for the population of the valley. We have no later authority for the number of the inhabitants. The chief town is Mauléon or Monléon en Barousse, which had, at the beginning of the present century, a population of 610.

BAROZIO. [See VIGNOLA.]

BARQUISIMETO, a city of South America, in the province of Venezuela, 120 miles W.S.W. of Caracas, 9° 50′ N. lat., 69° 20′ W. long. The city was founded by the Spaniards in 1522. In consequence of its situation upon an elevated level, it has the benefit of every breeze; and thus, notwithstanding its position within the tropics, it generally enjoys a mild temperature. Lavaysse was assured that when no wind is stirring the thermometer rose to 28° and 29° Réaumur; but the elevation of the site led him to doubt this. The neighbourhood is very fertile, and the plains, valleys, and hills afford a great variety of products and fine pastures for cattle. In the valleys most of the productions of the tropics are raised, particularly coffee of excellent quality. The town was formerly well built, with straight and wide streets: it had a handsome parish church, and there was a rich Franciscan convent, and an hospital, in which the poor were indifferently accommodated and badly fed. The town, with its vicinity, contained, when Lavaysse wrote, a population of 15,000 persons; but Barquisimeto is now but a remnant of what it formerly was. No place in Venezuela suffered so much as Barquisimeto from the great earthquake which desolated the province in 1812. Scarcely a house was left standing, and it is said that 1500 of the inhabitants were buried in the ruins. The inhabited part is now comparatively small, having been built since that period with the materials which abound in every direction. The population, with the environs, was, ten years ago, estimated at from 8000 to 10,000, the greater proportion inhabiting the villages near the town. We have, at a more recent period, seen the population estimated at 12,000, which would imply that the place is gradually recovering from the effects of the calamity of 1812. (Lavaysse's *Voyage aux Iles de Trinidad, de Tabago, de la Marguerite, et dans diverses parties de Vénézuéla*, 1813; *Letters written from Colombia during a Journey from Caracas to Bogota, and thence to St. Martha, in* 1823.)

BARR, or, as it was formerly spelt, BAAR, a small town in France in the department of Bas Rhin (Lower Rhine), distant about twenty miles from Strasbourg to the S.W., as we judge from the maps, having no other authority. It is in 48° 25′ N. lat., 7° 29′ E. long., and situated on a brook which runs into the Andlau, a tributary of the Ill. The town received great damage in 1794, from the explosion of its arsenal, but it has since been more regularly built. It is situated in a beautiful valley, surrounded with vineyards; and its inhabitants, who amounted in 1832 to 3720 for the town, or 4514 for the whole commune, carry on considerable manufactures in cotton and wool. There are also bleaching-grounds and dye-houses. (Malte-Brun, Balbi.)

A small forest in the neighbourhood takes its name from this town.

BARR, or BARRA, a petty kingdom of Western Africa, at the mouth of the Gambia, extending eighteen leagues along its northern bank, with a breadth of fourteen leagues, and containing an area of about 250 square leagues. This and some neighbouring kingdoms on the Gambia were founded by Amari-Sonko, a Mandingo warrior, who came down the Gambia at the head of 20,000 men, and having conquered the countries near its mouth, was enabled to maintain himself by the aid of reinforcements from the interior, and of the weapons which he obtained from Europeans in exchange for slaves. It was apparently for the purpose of facilitating the operations of the traffic in slaves that the expedition was originally undertaken. When Amari-Sonko died, his conquests were divided among his three sons, who respectively became sovereigns of Barra, Kollar, and Badibou. Their descendants still reign; and the memory of these events is preserved by tradition among the people. The Mandingos of Barra and the other two kingdoms are a fine race of men; their average stature is five feet ten inches, but this is often exceeded; and their countenance has more length than is usually observed among negroes. Their habitations and modes of living display more comfort than is found among their neighbours the Jaloofs. It is remarkable that the houses of free men are of a square form, while those of slaves are round. They are all zealous Moslems, very active in their habits, very intelligent, and very cunning in commercial affairs; their general character is hospitable, benevolent, and sociable. The territory of this small state is in general well cultivated, and contains a large number of considerable villages. There are some fine forests, but they do not together occupy more than one-eighth of the surface, which is rather marshy, but very fertile, and capable of being rendered highly productive with little labour. Golberry estimated the population of this state at 200,000 persons. (Golberry's *Fragmens d'un Voyage en Afrique*, 1802.)

BARRA, or BARRAY, one of the Western Islands of Scotland, belonging to the shire of Inverness, is 42 miles W. by N. from the point of Ardnamurchan: it is about eight miles in length, and from two to four in breadth, being deeply cut in different places by arms of the sea. It comprehends an area of about 16,000 acres. The name appears to be derived from St. Bar, bishop of Caithness, to whom the principal church is dedicated. Several Druidical temples and Danish duns, as some writers consider them, are dispersed over the island; and at Chisamil Bay are the remains of a castle, which was the residence of the lairds of Barra until the beginning of the eighteenth century. The island is divided into two portions, connected by a low sandy isthmus, over which the eastern and western seas nearly meet at high water. The southern and larger portion contains a rocky mountain about 2000 feet high, which descends somewhat abruptly into Chisamil Bay, and declines to the north and east by a succession of lower hills, terminating on the shores in various rocky points that separate the small valleys in which the population lives. The land is sandy and of little value, even where it is susceptible of cultivation. The rougher tracts are appropriated to the pasturage of black cattle, which the proprietor buys up for exportation from his tenants. Agriculture is not in a flourishing state. The ristle-plough, an antient instrument carrying the coulter only, and preceding that which contains the share, is still in use. A considerable number of the inhabitants are employed in collecting sea-weed and burning it into kelp. The Barra men are among the most active and industrious fishermen in Scotland. They carry on an extensive cod and ling fishery, and take the produce to the Greenock market. Their boats are superior to those of the other Western Islands, and of somewhat peculiar construction. They are built by the boatmen themselves, and are of considerable size, so as easily to carry ten or twelve men, and exceedingly sharp both fore and aft. They have no floor, but rise with an almost flat straight side, so that a transverse section somewhat resembles a wedge; yet they are swift and safe. The fishermen are comparatively wealthy, but their houses exhibit no superi-

ority to those of their poorer neighbours. The houses in Barra only differ from other Highland houses in one particular, which is, that the roof springs from the inner edge of the wall instead of the outer, in order that all the rain may be caught by the wall, and make its way among the stones, thus preventing the dropping of eaves by what we should consider a greater inconvenience. In this island, as indeed in most of the Western Isles, shell-fish are very abundant, and form at all times a great resource to the people. They are in the habit of boiling limpets, clams, and other species, and making use of the broth, mixed or boiled up with a little oatmeal. The great sand-bank at the north end of Barra produces cockles in such immense quantities, that in times of scarcity, when the inhabitants have resorted to them for their daily subsistence, from one to two hundred horse-loads have been taken off the sands every day of the spring-tides during the months of May, June, July, and August.

The Gaelic language is said to be spoken in its greatest purity in Barra. The inhabitants are mostly Roman Catholics. There are three churches in the island, one at the village of Borve, and two at Killbar, one of which belongs to the Catholics. The Edinburgh Society for Promoting Christian Knowledge supports a school at this place; a school-house and a dwelling for the master having been built by the heritor. The proprietor of Barra and the adjacent isles is Roderick Macneil, Esq., whose predecessors are said to have possessed them before the Danes. The Macneils of Barra were the first of that name that came from Ireland, and have always been acknowledged the chief of the Macneils in Scotland. Barra belongs to a parish of the same name, which includes seven other inhabited islands, and several uninhabited. The population returns for 1831 do not state the population of this island separately, but give that of the whole parish as 2097, of whom 1077 are females. This is a decrease of 206 persons on the preceding census, which, in the population returns, is attributed to emigration to North America.

(M'Culloch's *Highlands and Western Islands of Scotland*; Hall's *Travels in Scotland*; Carlisle's *Topographical Dictionary of Scotland*.)

BARRACK, originally a hut or little lodge for soldiers in a camp; from the Spanish *barracas*, meaning small cabins, such as fishermen build upon the sea-coast. Temporary constructions of this sort for the horse were formerly called *barracks*; those for the foot, *huts*; but, in later times, the word barrack has been indifferently used for both. Barracks of this description are generally made by fixing four forked poles in the ground, and laying four others across them; the walls being afterwards built up with sods, wattles, or what the place may afford, and the top planked, thatched, or covered with turf. Modern camps, as far as the common soldiers are concerned, are now usually formed of such barracks arranged in streets; the officers only are lodged in tents.

The word barrack does not occur in our older dictionaries, though it is found in Phillips's *World of Words*, fol., London, 1706. Barrack, in a more enlarged sense, is now applied to the permanent and commodious buildings in which both officers and men are lodged in fortified towns or other places.

A writer in a periodical paper entitled *Common Sense*, No. 105, published in 1739, speaks of permanent barracks for the lodging of troops as then just introduced. He states that a few years before, in 1720, when the plague raged at Marseilles, an attempt was made to raise such buildings in London, under pretence that if we should be visited, the sick might be removed to them. But the design was seen through; the citizens took the alarm, and cried out they would have no *red-coat-nurses*.

Great opposition was made in parliament, during the French revolutionary war, to the erection of barracks on an extended scale, as inimical to the liberties of the country, as calculated to estrange the soldier from the citizen, and to render the former a fit tool to enslave the latter, should the people be called upon to submit to unpopular or arbitrary measures. Other arguments had greater weight, however, on the side of these establishments: the system of quartering was, in many instances, vexatious; the morals of a country town or village were corrupted proportionally as soldiers were quartered upon the inhabitants; and it was found that soldiers and citizens might be too much, as well as too little, intermixed.

Until the middle of the reign of George III., barracks of this last description were not numerous in Great Britain. When wanted they were built under the direction of the Board of Ordnance, by whom they were supplied with bedding and utensils; but the articles which were extraordinary were under the management of the secretary-at-war. This system prevailed until the middle of 1792, when the situation of public affairs induced his majesty's ministers to give orders to build, with the utmost dispatch, cavalry barracks in various parts of the kingdom; and Colonel De Lancey, then deputy-adjutant-general, was requested to undertake the arrangement of the business. In January, 1793, he was appointed superintendent-general of barracks, and on the 1st of May that year the king's warrant was issued for their regulation. More extensive authority was given to him by a warrant dated May 30th, 1794, when he was appointed to the office of barrack-master-general to the forces. But as this seemed to interfere with the duties and powers of the Board of Ordnance, a new warrant was issued in 1795, defining the powers of the barrack-master-general, and those of the Board of Ordnance; under which warrant Lieutenant-General De Lancey acted in all subsequent transactions. The salaries and extra pay of the barrack-master-general and his officers amounted, in 1796, to 9524*l.* 17*s.* 2*d.* The establishment was afterwards considerably increased, in proportion as the number of barracks throughout the kingdom multiplied, and by the creation of new officers. In March, 1806, their salaries amounted to 19,329*l.* 4*s.* 10*d.*

During this year, the commissioners of military inquiry recommended that the offices of barrack-master-general and deputy barrack-master-general should be totally abolished, and that the superintendence of the barrack establishment should be vested in commissioners. This suggestion, with some others relative to the mode of transacting the business of the department, and preventing useless and extravagant expenditure, have been followed, and the barrack establishment is now under the direction of four commissioners, one of whom is generally a military man.

The total expenditure in Great Britain and the islands of Guernsey, Jersey, and Alderney, on buildings for the purposes of barracks from 1793 to November 10th, 1801, was 4,115,383*l.* 6*s.* 1¾*d.* The total expenditure in Great Britain and Ireland, on buildings for the same purposes (including the artillery), from 11th November, 1804, to 24th December, 1819, was 3,220,857*l.* 17*s.* 5*d.* Expenditure from 1793 to 1819, in buildings in Great Britain for the purposes of barracks for the artillery, 735,842*l.* 3*s.* 3*d.*

(See Connelly's *Dict. de las dos Languas, Española é Inglese*, 4° Madr. 1798; *Encyclopédie, mise en ordre par M. Diderot*, tom. ii, fol. Par. 1751, p. 68; James's *Military Diction.*, vol. i., 8vo., Lond. 1810; *First, Second, Third*, and *Fourth Reports of the Commiss. of Military Inquiry*, 1806; and *Barrack Accounts of Expenditure for Buildings*, ordered to be printed by the House of Commons, July 3, 1820.)

BARRAMAHAL, or BARRA-MAUL, a subdivision of the province of Salem, under the Madras presidency, situated between 12° and 14° N. lat. The name Barramaul, which signifies the *twelve places*, was given to the district because it contained twelve fortresses which were once places of note. The names of these places, as given by Major Rennell, were, Kistnaghiri, Gegadivy, Candely, Congoonda, Vaniambady, Mahrauzegur, Cockingur, Cooturagur, Bazingur, Tripatore, Tadcull, and Gigangurry. Only three of these places, Kistnaghiri, Vaniambady, and Tripatore, are now existing, and none of them are places of strength. The fortifications of Kistnaghiri were destroyed about forty years ago by the English. Vaniambady has a mud fort incapable of withstanding an assault of European troops, and Tripatore is altogether an open town.

The Barramahal district is a wild and mountainous region, above the eastern ghauts, and at one time contained a considerable number of hill-forts, which are now either dismantled or have fallen to decay. After the capture of Seringapatam in 1799, several districts of Karnata were added to the Barramahal district. These added districts, as enumerated by Dr. Francis Buchanan (afterwards Hamilton), are, 'the Talucs of Hosso-uru, Denkina-cotay, Kella Mangalum, Ratnagiri, Vencatagiri-cotay, and that portion of the Alumbady Taluc which lies on the left of the Cavery, together with the Polyams, or feudatory lordships, of Punganuru, Pedda-Nayakana-Durga, Bagaluru, Suligiri, and

Ankusagiri.' The temperature of these added districts is much colder in the rainy season than it is in the antient district of Barramahal, and the climate is not so healthy. On the occasion of the cession already mentioned, the Polygars, who had been dispossessed by Tippoo Sultan, had their estates restored to them, and were placed by the British government on the same footing as the Zamindars of Bengal, paying a fixed rent or tribute for their land, but exercising no jurisdiction over the inhabitants of their pollams.

The construction and conservation of tanks in countries where the successful prosecution of agriculture depends mainly upon irrigation, is a matter of the first importance. In Barramahal it is encouraged by a regulation, which gives to every man who constructs a tank at his own expense one-fourth of the land watered by it, to hold the same in free estate and to transmit it to his heirs, to be enjoyed by them so long as the work is kept in efficient repair. It is found that tanks thus constructed are always better maintained than those of which the government has charge, the officers to whom the preservation of the latter is committed not having an equal interest in their efficiency.

There is not much rice cultivation in the added districts, and the few reservoirs of water which they contain are chiefly employed for the irrigation of *tarkari*, or kitchen-gardens, the cultivation of which is of the utmost importance to the inhabitants. These gardens are usually of the extent of about three acres, and each can be cultivated by three men. The whole of the ground is in constant crop, and besides producing green vegetables and cucurbitaceous fruits for the families of the cultivators, it yields wheat, maize, ragy (*Cynosurus corocanus*), which supplies the greater part of the lower ranks of society with their ordinary food, fenugreek, onions, garlic, turmeric, tobacco, poppies, capsicum, and the various carminative seeds. Some few of the cultivators of these gardens make opium, but more generally the poppy is cultivated on account of its seeds, which are greatly esteemed in this quarter, and are much used in preparing sweetmeats and cakes for the wealthy. The operation of extracting opium from the plant is found to lessen the quantity of poppy-seed that arrives at perfection.

Tobacco is also raised in the open fields, as well as a small quantity of millet. The sugar-cane is cultivated abundantly, and there are numerous plantations of cocoa-nut and Areca palms.

Some coarse manufactures are carried on in the district, but the more wealthy inhabitants draw their supply of such necessaries from other parts, and in a great degree from Salem and Bangalore.

When the Barramahal districts first came into the possession of the East India Company, their state was in every respect miserable. The inhabitants have still an appearance of wretchedness about them, and the country is infested by beggars. The condition of the cultivators has, however, been so far improved, that, although the nominal rents have been reduced, the revenue derived by the government has been more than doubled. Nearly all the inhabitants are Hindus; only about one twentieth are Mohammedans.

(Rennell's *Memoir of a Map of Hindustan*; Buchanan's *Journey through Mysore, Canara, and Malabar*; *Reports of the Committee of the House of Commons on the Affairs of India, Session* 1832.)

BARRA'S, PAUL JEAN FRANÇOIS NICOLAS, COUNT DE, a member of the French Directory, and an important actor in some of the principal events of the French Revolution, was born June 30, 1755, at Fox, in the department of the Var. His family was one of the most antient among the nobility of Provence. In 1775 he entered the army, and sailed for the Isle of France, but the vessel was wrecked on her passage. Owing partly to the exertions of young Barras, the crew and passengers eventually reached Pondichery in safety; but this place was soon after invested by the English, and on its capitulation he returned to France. He again returned to India, with Suffrein, where he did not remain long; he left that country with the intention of proceeding to the siege of Gibraltar, but not arriving in time he went to Paris. Here he expressed himself with so much freedom respecting the conduct of the war in India, that a *lettre de cachet* was prepared for him, and its operation was only prevented by the exertions of an influential friend. At this period the life of Barras was that of a man of pleasure, and in this career he soon wasted his moderate fortune. The Revolution at length commenced, and he immediately became one of its warmest partisans. Though he joined in the attack on the Bastille, he condemned many of the excesses of that period: but the part which he took was a decided one. He was a member of the Jacobins' Club from its commencement, and was engaged in the affair of August 10, 1792, which virtually terminated the existence of the monarchy. Being sent to the National Convention as representative of his native department, he voted unconditionally for the death of Louis XVI. From the Convention he received various public commissions, in one of which he was engaged in the south of France at the time when the English blockaded the town of Toulon. On this place falling into the hands of the republicans, he was one of the five conventionalists who sat as a commission and carried into effect the frightful orders of the Convention for the proscription and execution of the Toulonese. Through the influence of Barras chiefly the commission did in some degree mitigate the severity of their original orders; but more than four hundred executions took place. Only he and another member escaped the denunciations which its proceedings excited on the part of more than three hundred of the political clubs with which France was at that time covered. On his return to Paris, Robespierre received him with a sneering compliment on his energy. At this time terror reigned in the capital. The Girondists, and even Danton, had perished on the revolutionary scaffold; and Barras was determined not to go to the Convention unarmed, where, by the boldness of his character and other considerations, he was a personage of considerable importance as one among the few opponents of the terrorists. Robespierre beginning to feel that his power was on the decline, meditated a new proscription, and wished to strengthen himself with the support of Barras, who, however, refused to ally himself with the tyrant, and even made known to his colleagues the proposition of Robespierre, adding, 'He is lost in spite of the Jacobins.' Finding it impossible to treat with Barras, Robespierre kept aloof from the committees, but after an absence of two months he made his appearance. The celebrated movement of the 9th Thermidor (July 27, 1794) immediately followed. On that day, Barras and some other deputies presented themselves to the Convention. Tallien denounced Robespierre, whose arrest being decreed, he was sent to prison, from which however he escaped. Henriot, commander of the Parisian Guard, a creature of Robespierre's, marched on the Convention, which, in its imminent peril, named Barras General in Chief, and charged him with its defence. The fate of the day was soon decided; and Robespierre, with some of his most intimate partisans, was executed. Barras was afterwards charged with the superintendence of the children of Louis XVI., who were confined at the Temple, and his conduct towards them was marked by consideration and kindness. Indeed, after the 9th Thermidor, he displayed great moderation; and he obtained the erasure of many names from the list of proscribed emigrants. He was named successively secretary and president of the National Convention. In his political principles he evinced great independence, or what has been called by others great selfishness. He had neither allied himself with the Girondist party nor with that of the Mountain; and when the re-action resulting from the 9th Thermidor appeared likely to assume too great a development, he opposed its progress. At a subsequent crisis of the Revolution, that of the 13th Vendémiaire (Oct. 5, 1795), the Convention again named Barras General in Chief. The success on this occasion was chiefly owing to Bonaparte, to whom Barras, recollecting his services at Toulon, had confided the command of the artillery; and he afterwards obtained for Bonaparte that of the army of Italy. The anarchists being put down by the 13th Vendemiaire, the directorial government was formed, of which Barras was a member. It did not work well, and the *coup d'état* of the 18th Fructidor (Sept. 4, 1797) was resolved upon as a means of effecting its more complete consolidation. For the third time Barras was invested with dictatorial powers, and success again attended his efforts. General Augereau invested the halls of the legislative councils and arrested the obnoxious members. [See AUGEREAU.] Two members of the Directory, Barthelemy and Carnot, about forty members of the legislative Council of Five Hundred, eleven members of the Council of Elders, and other individuals were ordered to be transported to the swamps of Guiana, where several of them died. Carnot escaped into Germany. The Council of Five Hundred,

being new re-modelled, became a subservient instrument of the Directory, and it even urged the necessity of getting rid in a similar manner of such of the nobility as still remained in the country, but Barras in this instance successfully opposed their wishes. The power of the Directory, however, was far from being firmly fixed. The affair of the 30th Prairial (May 18, 1799) shook it to its foundations. The legislative councils now resumed their independence, curtailed the dictatorial power of the Directory, and obliged three of the directors to give in their resignation. This was partly the work of Sieyes, who became one of the members of the Directory. Barras contrived to remain in office, though he had opposed this movement: but he and Sieyes were united as to the necessity of overthrowing the constitution of the year three, since a new combination of the executive power seemed to them the only means of fixing themselves more firmly in the government. General Bonaparte being apprized of these intrigues by his brother Lucien, left the army in Egypt, and arrived in Paris for the purpose of carrying his own personal projects of ambition into execution. Seconded by Sieyes, he effected the revolution of the 18th Brumaire (Nov. 9, 1799), the immediate result of which was his nomination as First Consul. From this period the power of Barras was annihilated. Finding himself abandoned by everybody, he sent a letter to the President of the Council of Elders, saying 'that he returned with satisfaction to the rank of a mere citizen, leaving the destinies of the republic in the hands of the illustrious warrior whom he had been so fortunate as to initiate in the career of glory.' He at the same time charged his secretary, Bottot, to ask of the First Consul a passport to Grosbois, where he lived in retirement, refusing all the offers made to him by the new government; among others, the embassies of Dresden and of the United States, the command of the army of St. Domingo, and even a medal which Bonaparte had struck. Under the operation of a law which compelled military men deprived of their rank to reside above forty miles from the capital, he sold his estate at Grosbois, and proceeded to Brussels; but this city not agreeing with him, he obtained leave to retire to Marseilles, where he lived, as before, under surveillance, attending quietly to agricultural pursuits. In 1813 he was inculpated in a conspiracy, and underwent some interrogations; after which he was exiled to Rome, but remained still under the watchful eyes of the French police. Here he was again accused of being connected with a conspiracy, but the preliminary investigations into its character and ramifications were broken up by the fall of Napoleon; indeed it is questionable whether he was really engaged in this or the preceding affair. In 1814 he took up his residence at Paris. Being consulted as to the course of affairs by the newly-restored government, he replied to M. de Blacas, 'You will lose the king: your only occupation seems to be to provide lodgings for yourselves and him at London.' In 1815, foreseeing new troubles about to burst on France, he withdrew from Paris, but returned on hearing of Napoleon's disembarkation. Meeting the Duke of Otranto (Fouché), Barras asked him if he might at length consider himself in security, to which the minister replied, 'Oh, do not doubt it; you will be called to the Chamber of Peers.' Barras answered, 'I will never associate myself with the oppressors of the people;' and during the Hundred Days he accepted no public employment. Afterwards he resided at Chaillot, near Paris. He died in January, 1829. Barras was more fond of pleasure than of business, but he was not destitute of talent; inclined to indolence, he could show firmness and activity at times; he had considerable shrewdness and tact; he was naturally humane and good-natured, generous towards his friends, and prodigal in his expenditure. Notwithstanding his affectation of republicanism, his manners and tastes were those of a nobleman of the old monarchy. He could speak well and to the purpose; and these qualities gave him an ascendancy over his rougher colleagues. Throughout the various changes which the Directory underwent, Barras was the only member of it that kept his seat from its installation, at the end of 1795, to its final overthrow by Bonaparte in November, 1799. As a leading man of that government Barras shared the odium which it incurred for its arbitrary acts at home, and its dishonesty in its foreign relations. Of the latter we need only mention the unprincipled invasion of Switzerland, the plunder of the Italian States, the barter of Venice to Austria, the invasion of Egypt without any declaration of war, and while France was at peace with the Porte, &c. The details are found in the official documents of the time, in the reports of the legislative councils, and especially in the act of accusation read in the Council of Five Hundred the 5th August, 1799, in which the charges against the Directory are classed under nine distinct heads, in Carnot's *Memoires*, in the *Histoire du Directoire*, Paris, 1801, &c. (See *Directoire Executif*.)

BARRATRY, BARATRY, or BARRETRY. The original derivation of this word is extremely uncertain: in English law it has a twofold signification, which it is difficult to trace from any account yet given of its etymology. First, barratry is a misdemeanor at common law, and consists in frequently exciting and stirring up disputes and quarrels either by litigation in courts or otherwise; and secondly, it denotes a fraud, or such a degree of culpable negligence as amounts to fraud or bad faith, committed by the master or mariners of a ship with relation to the ship or cargo under his care, by which the owners or freighters may be injured. The Italian word *barratrare*, from which the term barratry in this latter sense is immediately derived, means *to cheat* generally; but in English law it is entirely a technical expression, and is only used to denote that particular description of knavery above described.

I. As to the misdemeanor of barratry at common law.

This offence is so vague and indefinite in its nature, and has been so little noticed in modern times by courts of justice, that it would probably be found difficult at the present day to prosecute a barrator to conviction. Sir Edward Coke and other antient authorities state that it is not necessary, in order to constitute this kind of barratry, that the suits promoted by the barrator should be commenced in courts of record; the offence may be committed by stirring up litigation in hundred or county courts, or other inferior jurisdictions. It is also said not to be a material part of the offence that the suits or quarrels commenced should relate to a disputed title to the possession of lands, but that all kinds of disturbances of the peace and the dispersion of false rumours and calumnies which may promote discord among neighbours will amount to barratry. A single act cannot amount to barratry, as the essence of the crime consists in the frequent repetition of acts tending to stir up quarrels; nor is it necessary that an indictment for this offence should specify any particular transactions in which the person accused has promoted contention or litigation, but it is sufficient to state generally in the indictment that he is a *common barrator*. This anomaly in criminal law, from which it followed that a defendant might be called upon at the trial to justify fifty distinct and complicated transactions without the slightest previous notice, necessarily led to another, namely, that the prosecutor was bound to deliver to the defendant before the trial a notice of the particular acts of barratry on which he meant to insist, and it was a rule that none could be given in evidence but such as were stated in this notice. The punishment for this offence is fine and imprisonment, at the discretion of the court in which the conviction takes place; but Mr. Serjeant Hawkins says, that 'if the offender be of any profession relating to the law, he ought to be disabled from practising in future.' (Hawkins's *Pleas of the Crown*, book i. c. 81.) At common law, it appears that a person convicted of barratry might have been sentenced to the pillory. In the case of the King against the Warden of the Fleet (*Modern Reports*, vol. xii. p. 340), the record of the punishment of a barrator by a fine being produced, Lord Holt said, 'If he had had the handling of him, he had not escaped the pillory; and that he remembered Serjeant Maynard used to say that it were better for the country to be rid of one barrator than of twenty highwaymen.' By the statute 12 Geo. I. c. 29, sect. 4 (revived and made perpetual by 21 Geo. II. c. 3), if any person convicted of common barratry shall practise as an attorney, solicitor, or agent in any suit or action, the judge or judges of the court where such suit or action shall be brought, shall, upon complaint or information, examine the matter in a summary way in open court; and if it shall appear that the person complained of has offended, shall cause the offender to be transported for seven years.' There is no recorded instance of proceedings having ever been taken under this statute.

II. Barratry by masters or mariners of ships.

This offence is not an object of the criminal law of England; and in this country is only a subject of importance with reference to marine insurances. From the earliest times, a loss by the barratry of the master or mariners has

formed a subject of indemnity by underwriters in British policies of insurance. The absurdity and impolicy of inserting this species of loss in marine policies have often been pointed out by high authority. 'It is somewhat extraordinary,' says Lord Mansfield in the case of Nutt *v.* Bourdieu (*Term Reports*, vol i. p. 330), 'that this term should have crept into insurances, and still more that it should have continued in them so long, for the underwriter insures the conduct of the captain (whom he does not appoint, and cannot dismiss) to the owner, who can do either. Lord Ellenborough makes the same remark, and also points out the impolitic tendency of this kind of insurance, as enabling the master and owners, by a fraudulent and secret understanding, to throw upon the underwriters the failure of an illegal adventure, of which the benefit, if successful, would have belonged solely to themselves. (See Earle *v* Rowcroft, East's *Reports*, vol. viii. p. 184) Upon this it may, however, be observed, that merchants are always desirous to limit the number of their risks as much as possible, and if they are willing to pay for their indemnity from the fraudulent acts of their own servants, there seems to be nothing unreasonable in such a contract, while, on the other hand, it is the whole business of underwriters to insure against risks, and it is quite indifferent to them what the nature of that risk is, provided they clearly understand the nature of it, and receive a proportionate premium

The legal meaning of the term barratry thus inserted in policies of insurance has frequently become a subject of discussion in courts of justice Its original and verbal signification is framed in the most general sense, and is defined in Dufresne's *Glossary* as fraus, dolus, qui fit in contractibus et venditionibus, without being limited to marine contracts, or to any particular class of contracting parties In English law, however, it is certainly understood only in the limited sense mentioned in the commencement of this article It means every species of fraud or knavery in the master or mariners of the ship by which the freighters or owners are injured Barratry may therefore be committed either by a wilful deviation tending to defraud the owner, by smuggling, by running away with the ship, by sinking or deserting her, or by delaying the voyage by any means, or for any length of time, with a fraudulent intent It follows, that in all cases where the underwriter has insured against barratry, the assured will be entitled to recover the amount of a loss which he may have sustained in consequence of any of the acts above enumerated There must, however, be always a fraud or breach of trust in order to constitute barratry, and therefore a mere deviation in consequence of the ignorance of the master will not amount to barratry, though it would avoid the policy as being a variation from the voyage insured It must also be an act done tending to defraud the owner, and therefore where the owner consents to the acts done by the master, though they may amount to a gross fraud upon the underwriter, they will not constitute the technical offence of barratry, and, for the same reason, where the master of a ship is also the owner, there can be no barratry committed by him, because he cannot defraud himself For more particulars on this subject see Selwyn's *Nisi Prius*, tit 'Insurance', and Park on *Insurance*

BARRAUX, a small fortress of the department of Isère, in France, on the frontier towards Savoy It is a place of considerable strength, and was erected in the year 1597, by order of Charles Emanuel, Duke of Savoy The Duke seems to have been prompted by the vanity of erecting a fort in the territories of the King of France The Constable Lesdiguières, who commanded the French army close at hand, allowed the work to proceed without interruption, in spite of the pressing entreaties of those under his command The incident was talked of at court, and the inaction of the Constable furnished his enemies with the opportunity of calumniating him The king himself, Henry IV, blamed him, but Lesdiguières desired him not to be uneasy; represented to him that a fort was requisite in this part of his dominions, and that if the Duke of Savoy did not build one, his Majesty must; he assured him that, when it was finished, he would take it without cannon, without laying siege, and without the cost of a crown He kept his promise; the fort was carried by moonlight, on the 13th of March, 1598. The fort remained in the hands of the French by the treaty of Vervins, concluded in the same year.

It is on the right bank of the Isère, not far from the Savoyard fortress of Montmeillan, to which it serves as a check. The population was given in the *Dictionnaire Universel de la France* (Paris, 1804) at 1312. The fort commands a fine view of the valley of Gresivaudan, in which it stands In front of it are the ruins of a château, once belonging to the Chevalier Bayard.

Barraux is about 374 miles S.E. from Paris; and about 22 miles N.E of Grenoble. 45° 27′ N lat., 5° 56′ E. long.

BARRÈGE, BARÈGES, OR BAREDGES, a village celebrated for its mineral waters, situated in the valley of Bastan, in the department of Hautes Pyrénées (High Pyrenees), in France, 491 miles from Paris, through Orléans, Limoges, Perigueux, Agen, Auch, Tarbes and Argellez, or 560 miles through Limoges, Cahors, Montauban, Toulouse, and Auch, 42° 53′ N. lat., 0° 4′ E. long.

The village stands amidst steep mountains, at an elevation of 4259 feet above the level of the sea, on the bank of a torrent which runs into the Gave de Pau. (Millin, *Voyage dans les Dep du Midi de la France*) It consists of one street, long and narrow, formed upon the slope of a mountain, and has little to recommend it in point of situation The dark impending rocks seem continually to threaten the place with destruction; and the ear is wearied by the constant roaring of the torrent, which carries along with it huge blocks of stone Yet the celebrity of the waters attracts a crowd of bathers, or of those who drink the waters Their reputation rose in the time of Louis XIV, who visited Barrège, in order to take them The place contains only about eighty or a hundred habitations, so slightly put together as scarcely to merit the name of houses The dread of having them destroyed by the overflowing of the torrent (especially when it is swelled by the melting of the snows) prevents their being built in a more substantial manner The row on one side of the street overhangs the river, the other row leans against the side of the mountain Towards the middle of the village, in the part most exposed to the inundations, the houses are built only of boards, and are taken down at the close of the bathing season. Not far from this range of temporary dwellings, beneath a flagged terrace, or court which is inclosed by a wall breast high, is a bath, divided into two parts, one for the poor and one for the soldiers. There is a barrack, erected by Louis XV, for the wounded soldiers, but it is insufficient, containing only sixty beds There are four baths (or five according to others) varying in their temperature, that which is divided into the two compartments just mentioned is the hottest—its temperature is stated by M Millin to be 39 of Réaumur, or nearly 120° of Fahrenheit, but in Malte-Brun the hottest spring is given at 50 of Réaumur, or nearly 145 of Fahrenheit The waters are sulphureous and sudorific they are considered efficacious in healing wounds There is a chapel at Barrège, and the neighbourhood presents some pleasant walks

The population of this little place is given in the *Dictionnaire Universel de la France* (Paris, 1804), at 670 We have no authority later than this About six hundred persons are said to visit the place every year.

In the neighbourhood of Barrège is a quarry of white marble, with greenish veins

The name Barrège, in Celtic, is said to signify a retired place, and well corresponds to the situation of the village. (Millin, *Voyage* &c)

BARREL Ducange states the word *baril* to be British. It is found in some shape, in several European languages, as a large vessel for holding liquors. In the old English measures it was used to denote

31½ old gallons of wine,
32 „ „ ale,
36 „ „ beer.

But the ale and beer barrels were equalized for every part of England except London by a statute of the 1st of William and Mary, and thirty-four gallons were made the barrel of beer or ale.

The wine gallon, by a statute of Anne, was declared to be 231 cubic inches, and the beer gallon (which did not differ from the ale gallon) was usually reckoned at 282 cubic inches; consequently the dimensions of the four barrels were as follows.—

	Gallons.	Cubic inches.
Wine barrel	31½	7316½
Ale ditto (London)	32	9024
Ale and beer ditto (England)	34	9588
Beer ditto (London)	36	10,152

In imperial gallons of 277·274 cubic inches, now in use, these measures are as follows:—

	Imp. gallons.
Old Wine barrel	26 ¼
„ Ale ditto (London)	32 [illegible]
„ Ale and beer ditto (England)	34 [illegible]
„ Beer ditto (London)	[illegible]

Many other *barrels* were in use to denote certain quantities of goods usually sold in barrels; thus the barrel of salmon or eels was forty-two gallons, that of soap 256 pounds, &c.

The measurement of the content of a barrel may be done with sufficient exactness as follows, in which the curve of the staves is considered as a parabola:—

1. Measure the diameter of the widest part (allowing for thickness) and that at the ends, which call the greater and smaller diameters: also measure the length from end to end.

2. To the larger diameter add one-fourth of the smaller, and multiply this sum by itself.

3. Multiply one-fourth of the smaller diameter by itself, and take the result five times.

4. Add together the two last results, multiply the sum by the length of the barrel, and that product by ·41888. The product is the number of cubic *inches* in the barrel, if the lengths were measured in *inches*.

The word barrel means, in common use, also any hollow cylinder, such as the barrel of a gun, a jack, or a hand-organ.

BARREL-DRAIN. [See DRAIN.]

BARRELIER, JAMES, was born at Paris, in 1606. After beginning the study of medicine, and receiving the degree of licentiate, when about to receive the degree of doctor, he abandoned medicine for theology, and in 1635 took the vows of the order of Dominicans. Having studied the fathers of the church, he taught theology, but devoted his leisure hours to the study of botany. In 1646 he was appointed assistant to the general of the order of Dominicans, and accompanied him on his visits to the different convents. In this way he traversed the South of France, Spain, and Italy. During these excursions he collected plants and other objects of natural history. He made drawings of the plants, which he caused to be engraved, with a view to their publication. Having had his head-quarters at Rome for twenty-five years, he returned to Paris in 1672, and took up his abode in the convent in the Rue St. Honoré. Here he laboured to perfect his work, till he died of asthma, 17th September, 1673.

He bequeathed his MSS. to the library of the convent, but soon after his death all his collections were dispersed, and some were burnt. The copper-plates escaped, and were collected and published by Antoine de Jussieu, who supplied descriptions, in the place of those which had been destroyed. This work, to which was prefixed a life of Barrelier, appeared in one volume, folio. *R. P. Barrelieri Plantæ per Galliam, Hispaniam et Italiam observatæ, iconibus æneis exhibitæ, opus posthumum; accurante* Antonio Jussieu *Botanices professore, in lucem editum, et ad recentiorum normam digestum, cui accessit ejusdem auctoris specimen de Insectis*, Paris, 1714. It contains 1324 plates, of which three are of shells, the rest of plants. Of these several are copies from Clusius, and earlier writers, and some twice or thrice repeated. Many were, however, quite new, or very rare, so that the volume is still worth referring to. Barrelier composed a work, intended to include descriptions of all the plants then known. He called it *Hortus Mundi*, but it was never published. He also left seven hundred figures of *fungi*, and three hundred of shells. A genus of plants belonging to the order of *Acanthaceæ*, was named in honour of him *Barleria*. (See Haller, *Bibliotheca Botanica*; *Biographie Universelle.*)

BARREN FLOWERS, in botany, are either those which have only stamens without a pistil, or which have neither stamens nor pistil. Flowers of the former description are very common; those of the latter kind are chiefly found in grasses and sedges, where they often consist of nothing more than a deformed scale.

BARREN LAND, in agriculture, is that in which the plants generally cultivated do not prosper or arrive at maturity. This barrenness may arise from various causes. The texture of the soil may be such, that the moisture essential to vegetation cannot be retained, or that the fibres of the roots cannot penetrate in search of food. The first is the case in loose siliceous sands, the second in rocks and indurated clays. It is seldom that either of these soils can be rendered productive, so as to repay the expense of cultivation unless under particular circumstances. The most barren sands will become productive by irrigation, and in that case the labour applied to improve their texture, by the admixture of more tenacious earth, may be fully repaid. The vine may be made to grow in the fissures of the hardest rocks, where the climate is favourable; and terraces may be formed, by which the soil brought on may be retained; but in general loose sands and rocks ought to be left to their natural state of barrenness.

There are, however, in all countries tracts of land which are barren and waste in their present state, and which, for want of better soils to employ and feed an increasing population, are well worth improving, and will ultimately repay the labour bestowed on them.

By the third Report of the Committee on Emigration, in 1829, it appears that the soil in the British dominions may be divided as follows:—Taking the total surface of England, Wales, Scotland, Ireland, and the British Islands, at 77,394,433 acres, only 46,522,970 acres were in cultivation, leaving 30,871,463 acres uncultivated or nearly so. Some part of this, no doubt, consists of high sheep-walks, mountains, bogs, and water; but a large portion is capable of improvement, by the application of capital and industry. The particulars are as below, and are given in the *Companion to the Almanac* for 1829.

	Cultivated.	Uncultivated.		Total.
		Capable of Improvement.	Unprofitable.	
England.	26,632,000	3,454,000	3,256,400	32,342,400
Wales...	3,117,000	530,000	1,105,000	4,752,000
Scotland.	5,265,000	5,950,000	8,523,930	19,[illegible],930
Ireland..	12,125,280	4,900,000	2,416,664	19,441,944
British Islands	383,690	166,000	569,469	1,119,159
Total..	46,522,970	15,000,000	15,871,463	77,394,433

Looking at this table, it is impossible not to ask whether so very large a proportion of the surface of the British dominions in Europe may not remain uncultivated more from want of industry and skill, than from insuperable barrenness.

We shall endeavour to give, as briefly as possible, an outline of the various means by which even the poorest soils may be rendered capable of adding something to the general stock of food necessary for a large and increasing population. The question as to the policy of cultivating such lands in preference to importing supplies of foreign grain, is not here considered. Our object is to shew how barren lands may be improved, whenever such improvement may be deemed expedient.

Some lands are barren in consequence of noxious ingredients in the soil, which by their chemical action on the food of plants, or on their minute fibres, prevent their growth and render them sickly and abortive. These having been ascertained by careful analysis, must be deprived of their noxious qualities by chemical means, one of the most obvious of which is burning or baking. Nature has supplied a general and complete antidote to acid combinations, in lime, one of the most abundant of mineral productions. There are few bad soils which lime will not improve. The most common substances found in barren soils are different combinations of metals, principally iron, with sulphur and acids: quick lime either decomposes all these, or renders them innocuous. Another substance is *tannin*, or the astringent principle, which is of vegetable origin, and by preventing the solubility of vegetable fibres, transforms them into an inflammable substance, well known by the name of peat or moss. This, likewise, is readily corrected by the same means, and experience has proved that of all substances which can be obtained in sufficient quantities, lime is the most valuable as an improver of bad soils. But the different substances of which a soil is composed may be perfectly innocuous to vegetation, and yet the barrenness may not be the less, if the supply or circulation of moisture be deficient or excessive. This must therefore be the first consideration, before any improvement is attempted; and if sufficient moisture cannot be supplied, or superfluous removed, all other attempts will only be lost labour. In the

pical climates, irrigation is the chief source of fertility, and the most expensive works have been constructed, both in ancient and modern times, to supply the land with water as occasion requires. In northern and moister climates, the foundation of all improvements in the soil is a proper outlet to superfluous water. These two subjects will be treated in the articles Irrigation and Draining.

Supposing, then, that the moisture has been regulated, and that the land is to be brought into cultivation, the first thing to be done is to remove obstructions and impediments, whether they be rocks, stones, trees, or shrubs, or only the heath and coarse grasses which generally cover waste lands. Rocks may be quarried or blown, and so may stones too large to be removed whole, and the fragments will often be useful in building the necessary farm offices, or making fences to divide the land into fields of convenient dimensions, and especially to keep off animals from destroying the crops. A simple method of getting rid of large stones is to dig a deep hole by the side of them, as near as possible, and roll them in, so that they may be buried at least two feet below the surface. If they can be removed, this may be done by means of a common triangle with a windlass and pulley, raising them on a low carriage with broad wheels, such as is used for heavy timber. If the nature of the stones is lamellated, and they will split, wedges of soft iron driven into holes made in the direction of the layers readily divide them into flat pieces extremely convenient for use. A very powerful wedge for this purpose is an iron cylinder cut through the axis into two pieces, between which a thin iron or steel wedge is inserted; a hole is bored in the stone of a diameter equal to that of the cylinder, and when this cylinder and wedge are put into it, the wedge is driven in with repeated smart strokes of a hammer. Several such wedges, placed in a line, will split large masses of the hardest granite, and next to gunpowder, are the most efficacious instruments for that purpose. Trees must be grubbed up by the roots, and it saves labour to cut the roots below the ground while the tree is standing, and draw the tree over by means of ropes fixed to the top; the stem becomes a lever, by which the roots are more easily drawn out. The Bern machine, which has been so often described, was invented for this purpose: it pushes the tree over, and lifts it at the same time. Useless shrubs are readily cut down, and serve for fuel; their roots are seldom difficult to grub up: a simple and powerful instrument for this purpose is a very strong iron three-pronged fork, having the prongs twenty inches long, and a strong ashen handle, twenty feet long, fixed firmly into it, to the end of which a rope is fastened; this is driven obliquely under the roots, and by means of a log as a fulcrum it forms a lever when pulled down by the ropes.



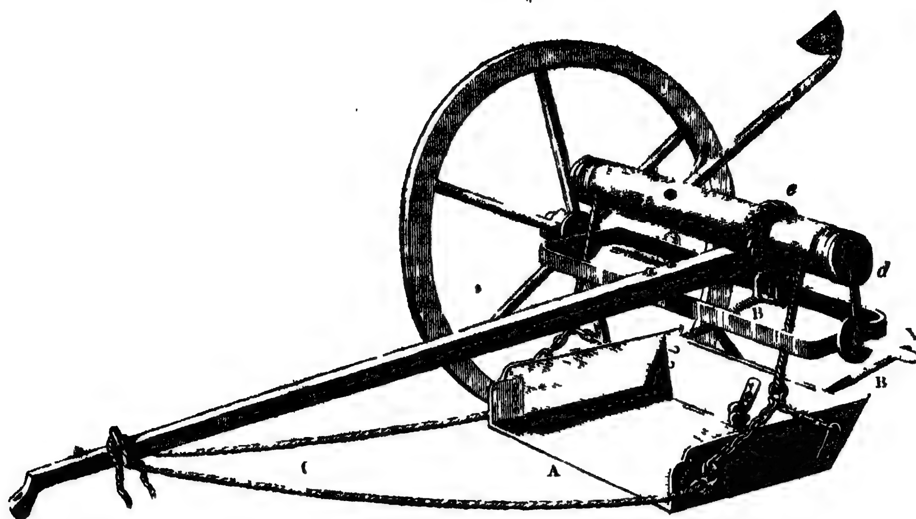
There are two methods by which the heath and grass of the surface may be got rid of, by mowing them close to the ground, and ploughing in the roots, or by paring the surface and burning it. Each mode has had its strenuous advocates, and has been alternately praised and reprobated. A little consideration will soon settle this point. If the soil consists of clay or loam containing the yellow ore of iron, and if the ashes, after the sods have been burned in heaps, are of a bright red colour, the effect of burning the surface will be generally advantageous, even where the soil is already deficient in vegetable matter; for the fire will do more good in correcting the crude qualities of the soil, than the small quantity of vegetable matter which is dispersed would have done, had it been decomposed in the most favourable manner, and the tough roots of the heath which are reduced to ashes would have taken a very long time to decay, and would have been a constant impediment to the plough. But if the soil is a sharp sand, and the ashes are white and loose, burning destroys the small portion of clay and vegetable matter in the soil, without compensating the loss by any advantage, and in this case burning the surface is inexpedient. The roots of the heath must be grubbed up by spades and mattocks, or by means of a strong plough; they may then be gathered and burned, but the grass must be ploughed in, and not too deep at first, that it may soon rot: a coating of lime ploughed in will accelerate the decay of the grass. This kind of soil requires the addition of vegetable and animal matter to supply the humus in which it is deficient, and the principal attention must be directed to this object.

When the surface is very uneven, so as to form hillocks and hollows, in which the water is apt to stagnate, levelling is a necessary process. The most effectual way of doing this is by the wheelbarrow and shovel, provided the distance to which the earth is to be wheeled does not exceed a hundred yards. The surface should be first pared off, and put in heaps or rows, to be replaced when the operation of levelling has been performed, in order that the best earth, impregnated more or less with vegetable matter, may not be buried under the poorer subsoil. If the soil is loose and sandy, it may be very expeditiously levelled by an instrument in use in Flanders, which they call a *mollebart*. It



is a large wooden shovel, shod with iron, having a long handle: about the middle of this shovel, which is convex at the bottom, are two hooks, one on each side, to which chains are fixed, which unite at the bar to which the traces of a horse or horses are to be attached: a rope fixed to the end of the handle completes the instrument. A man accustomed to the use of it raises the handle, and the shovel enters the ground, and is filled by the horse going on. By depressing the handle, the load is made to slide on the rounded bottom of the shovel, till it arrives at the place where it is to be deposited. By letting the handle go, retaining the rope, the whole is upset instantly, turning over on the edge; the handle strikes on the bar, and the load is left behind in a heap. By pulling the rope, the whole instrument resumes its original position, and is brought back to the place from which the earth is to be taken again, without any loss of time, or the slightest stoppage of the horses. About five cwts. of loose earth may be thus moved at each time. By means of this machine the small fields in Flanders are raised about two feet or more in the centre, and the ground laid convex, sloping in every direction to let the water run off. Thus also the soil of the headlands, which accumulates by the repeated turnings of the plough in our fields, might be carried back to the middle, or spread evenly over the ground. A patent has been lately obtained in France for an improved instrument of this kind, which has two large wheels for such grounds as will not readily allow the *mollebart* to slide over it. It is more complicated, but as it may afford useful suggestions, and be improved and simplified, we give a drawing and description of it.

A is the box or shovel to contain the earth, the bottom of which opens to release the load; B B two handles; C ropes to keep the box steady; *d* a windlass, with *e* a ratched wheel to raise the box when full; X is the axle on which the second wheel runs, which has been taken off to show



the construction of the instrument. It is not yet brought into general use, but the experiments made with it are said to have been quite satisfactory.

The land being now inclosed, fenced, and drained where requisite, obstacles to the plough removed, and in a tolerably level state, it remains only to consider how it may be most advantageously cultivated, so as in the end to repay the first and great outlay. Some lands which have lain waste for ages for want of a proper spirit of enterprise, are found to consist of a tolerable depth of moderately fertile earth. These must be treated like a garden newly formed, and trenched as deep as possible; mere exposure to the air and frost will often make them highly productive, and in this case the only caution necessary is not to exhaust them at first: on the contrary their fertility should be increased by such crops and manuring as will always restore more humus than has been consumed by vegetation. It is too common an error with those who have made a great outlay, to be impatient, and expect too rapid a replacement of the capital laid out. This makes them sow white crops in preference to roots and legumes; and as fresh earth is generally very productive, especially in straw, they imagine the land to be of a better quality than it really is, and soon exhaust it, by which they lose infinitely more in the end than if they began with roots and green crops, and raised a quantity of manure by the stock fed on them. Lime excites new land wonderfully, and no manure is more active, provided there be vegetable matter in the soil or added at the same time. The lime renders the natural humus soluble and active, and, if put on injudiciously, will soon leave none for future crops. Bone dust will raise a better crop of turnips than lime alone; but bone dust, or, what is better, coarsely bruised bones, are chiefly of use in raising the first crop of turnips. They should therefore be used sparingly, unless they can be obtained very cheap, and only on light loams or sands. Mixed with ashes in a heap, and allowed to heat, they become much more efficacious.

But after all the expense of clearing the land and preparing it for cultivation, it may yet be of such a quality as to dishearten the improver. We shall take an example from two kinds of soil very common in all the northern parts of Europe. The one is generally called sandy heath soil, the other is peat or moor, both quite unproductive till they are improved; and yet vast tracts of both have been brought into cultivation, and are covered with a rich harvest, in spite of their natural barrenness. Sir Humphry Davy declared, on analysis, that the soil of Bagshot Heath, in its natural state, was the most barren soil in England; yet great portions of this barren soil are now covered with thriving plantations, interspersed with green fields. The methods used to bring this land into cultivation will serve as an example for all similar soils. The surface soil of the heath consists of sand, gravel, and light loam, strongly impregnated with a yellow carbonate and sulphate of iron; the subsoil is generally a stiffer loam. The water which percolates the upper stratum dissolves a portion of the iron by means of the carbonic acid, and this iron, mixed with earth, is slowly deposited in a thin layer on the impervious subsoil, where it takes a hard crystallized form, called the *iron pan*, absolutely impervious to moisture; and until this pan be broken, no cultivation can take place. Trenching is therefore absolutely necessary wherever this pan exists at a small depth under the surface. A part of the subsoil being brought to the surface greatly improves the texture of the sand, and then the salts of iron must be decomposed and the acid neutralized by lime or chalk. Manure is now the principal object, and if it cannot be obtained from neighbouring towns or from old cultivated lands near at hand, the progress will be very slow. Planting trees, especially the fir and the larch, is then the only resource; but where manure and calcareous earth, either in the form of chalk, marl, or lime, can be obtained, the land may be cultivated and improved in the following manner. Lay on a good coating of chalk or marl before winter, and plough it in with a shallow furrow. In spring plough again deeper, mixing the calcareous earth as much as possible with the soil by frequent harrowings; all the dung that can have been collected must be laid on and ploughed in by the end of May. In June, drill turnip seed with bone dust if possible, in rows not too distant, say twelve inches if the soil is very poor, but wider in proportion as it is of better quality. These, as soon as they are in the rough leaf, must be carefully hoed till they nearly cover the ground. They must be fed off by sheep in the following winter and spring; the dung of the sheep must be ploughed in with a shallow furrow as soon as possible after the sheep are removed. The quality of the first crop will decide whether a crop of corn may be ventured on in the second year; in which case tartarian oats are found the best suited to such land; but, if the turnips were not a very good crop, a second crop of the same, or of cole, for the sake of variety, to be again fed off, will be much better husbandry; and until the soil shows an evident improvement in colour and texture the most that can be expected is a crop of turnips and oats alternately. As soon as the ground has, by frequent tillage and manuring, become of a uniform and somewhat mellow texture, the first opportunity must be taken to lay it down with white clover and perennial grasses, and let it remain in pasture two or three years without mowing. When it is next broken up, it may be treated as the old cultivated lands of a similar quality usually are.

If a well cultivated farm is near, and a sufficient supply of manure can be raised upon it by converting a portion of it into artificial meadows or keeping it under green crops, so that an increased quantity of stock may be maintained, the land to be improved may be soon brought into a productive state, without robbing the old land to make the new, as is too often done. Nothing has so rapid an effect in removing sterility as the free use of the urine of cattle, and the draining of dunghills, collected and allowed to ferment in covered tanks; but this can only be obtained by keeping cattle stalled and fed with provender brought to them. This is the great secret of the fertility of the once poor, barren heaths of Flanders. In different situations it may not be practicable to procure sufficient manure, at least at first, and the progress will be much slower. In this

case the seeds of rye, tares, beans, buck-wheat, and other succulent plants, must be sown, and the crop ploughed in when in blossom: potatoes and other roots may be raised, to be consumed by cattle and swine, in sheds built for the purpose near at hand, and every means that ingenuity can devise must be resorted to in order to make as much manure as possible. This is not to be applied to the land at once, but mixed up in heaps with sods and parings of the surface, with the ashes of roots burned, and with lime, and when thoroughly incorporated by frequent turning, mixing, and repeated watering with liquid manure, a good coat should be put on the land at once, as far as it will go: for one acre brought into a tolerably fertile state will repay the cost better than many imperfectly improved; and by proceeding gradually in this way, more land will be brought into a state fit for cultivation at the end of a few years, and at less expense, than could have been done by beginning with too much at first.

When an attempt is made to bring a large extent of very poor sandy soil into cultivation at once, as may be the case where labour is cheap, it would be impossible to procure the requisite quantity of manure to insure any return for the outlay. In that case there is a simple remedy, which, in the end, is very advantageous; it is to sow the seeds of broom and furze, which will readily come up, and, in the course of two or three years, not only be of some value to cut for fuel for bakers, but in the meantime have greatly improved the nature of the soil, especially that which has been trenched, by the quantity of vegetable substance contained in the roots and their fibres, and also in the leaves and tender stems which have decayed and dropped during the three years that the land has been covered with these plants. This, at all events, will more than repay the interest of the money expended in trenching, and the future improvement will go on much more rapidly than if the ground had been treated as is recommended above when first broken up. This practice also is taken from our sagacious and industrious neighbours the Flemish.

What has been said of a poor heath, or sandy loam, is applicable to every kind of unproductive soil, difference of composition and texture being kept in view. Poor, wet, stiff lands must be divided by deep ditches, ploughed in high ridges, and be as much as possible exposed to the wind and frost: instead of turnips, grasses must be sown, such as suit the soil. Paring and burning the surface are here generally useful in the first instance, and may sometimes be repeated with advantage. Such soils, in the end, are best calculated for permanent meadows; but it is essential to get them into a sound and fertile state by tillage and manuring, and by clearing them of all the roots and seeds of weeds before they be laid down with grass-seeds, which must therefore be done with a first crop after a clean fallow, or, which is still better, without any crop of corn at all, and kept free from coarser grasses by hand-weeding. *Inoculating* grass is by far the readiest way of producing a permanent sward. [See GRASS and INOCULATION.]

There is another kind of barren soil which extends over large tracts in northern climates, well known by the name of peat, or moor. This being chiefly composed of vegetable matter, is too loose in its texture for any vigorous vegetation. But, besides, it is of an insoluble, astringent nature, highly unfit for the increase and nourishment of plants. Moors being generally situated in valleys between mountains, draining off the superfluous water is the first and indispensable operation before any improvement of them can be thought of. The next thing is to compress the soft soil into a more solid state; and for this purpose any kind of earth or gravel is useful by its mere mechanical pressure. The surface may be burned in sods, and the ashes will greatly improve the remainder. Lime, chalk, marl, or shells, are the specific correctors of the quality and texture. By the help of these, the soft mass, which can only be stirred with a spade by men standing on boards, is made to produce abundant crops of potatoes and oats; and, gradually condensing, a more compact soil is formed, which soon bears the tread of men and even cattle; and then, properly speaking, the cultivation may be said to begin. The great object is to prevent the absorption of too much moisture by the still unconsolidated mass, which is effected by cutting numerous and deep ditches in every direction, with proper outlets kept carefully open; at the same time guarding against the opposite extreme of drying this spongy substance too much. If it is dry at top, and moist but not boggy a foot below the surface, it will be in the best state to improve and consolidate. It is surprising how soon a peat moss, of little more solidity than a bog, can be rendered perfectly firm, and bear even loaded waggons on its surface. It often happens, where there is a command of good water which can be brought above the level of the old peat moss, that it may be converted into a most productive water meadow. All that is required is, that the upper soil, artificially produced, be not broken through, and that the bottom be well drained.

We have only given brief hints and outlines to those who may be inclined to render lands productive which have hitherto been barren. The certain cost and probable improvement must be well calculated and compared to avoid disappointment and loss. As these depend on the peculiar circumstances of each case, it is impossible to give any general idea of them. But, by beginning on a small and experimental scale at first, and proceeding cautiously, new modes of lessening the expense of many of the operations will be suggested, errors will be avoided, and some certain practical ground of calculation will be obtained.

That there is a great pleasure in the pursuit no one can doubt, who sees at what expense favourite barren spots are improved; and a scanty harvest on land created, as it were, by art, pleases the proprietor more than the most abundant which his richest lands can produce.

Many a fortune, no doubt, has been impaired by rash speculations and too sanguine hopes; but, without this spirit of improvement, few soils, except the very richest, would ever have been cultivated, until the wants of a population greater than the richest lands could feed had forced the cultivation of those of inferior quality. It is in the tillage of very poor soils, chiefly, that those improvements in the utensils and operations of husbandry have been suggested and invented, without which a great portion of the soil of the British dominions, and of a considerable part of Europe, could never be cultivated to any advantage, much less afford rent to a proprietor, or contributions to the expenses of the nation.

The unproductive state of waste lands in many populous counties has suggested the employment of the poor and friendless on their improvement, and it has been thought a more enlightened charity to expend the money, which would otherwise be given in simple temporary relief, in such a manner as to make the labour of paupers available to their future comfort and independence. In some places portions of land have been given absolutely, or at a nominal rent, to paupers in order that they might cultivate and gradually improve them; and where the soil is naturally good, and requires only to be worked and tilled, the plan has been attended with great success. But where a barren waste can only be improved by artificial manures and expensive operations, it is folly to expect this to be done by labour alone, without considerable capital; and neither the judicious managers of public funds, nor prudent speculators on their own account, will venture to lay out much capital on the chance and with the hope that a naturally indolent and idle class of men shall make it productive either to themselves or those who have advanced the funds.

The establishment of a pauper colony at Frederiksoord, in the province of Drenthe in Holland, noticed by Mr. Jacobs, and of which a short account may be found in the *Companion to the Almanac for* 1829, seems to contradict this opinion; but until we shall have a little longer experience of the working of the plan, we cannot consider this experiment as decisive. The colony must necessarily increase the population, which is already redundant, and may, in the end, produce a seminary of paupers.*

A portion of good land, let at a fair rent to a poor family, with a little pecuniary assistance at first, in the purchase of a cow or pigs, and provisions, until the land produces food for the family, to be repaid by instalments, will occasion much less expense, and will in general be attended with less loss and fewer casualties than the improvement of poor sands and heaths, however judicious may be the management; and the ground converted into a garden will increase much more rapidly in value, than an equal quantity, originally worth nothing, can ever be made worth by three times the labour bestowed. Let the rich then be the improvers of wastes, and the poor lay out their surplus labour on more grateful soils.

* Since writing the above observations, we understand that the Belgian government has given up the plan of pauper colonies, of which there were several in Belgium, not having found them to answer the sanguine expectations of those who first proposed their establishment. Those in Holland are not thriving.

It is near increasing manufactures, where land acquires a greater value, that barren land is soon converted into fertile fields. It is there, also, that the improvement of waste lands is most profitable, and the neighbourhoods of Aberdeen, Birmingham, Manchester, and Sheffield, among many others, furnish examples of the greatest industry and perseverance in overcoming the natural barrenness of the soil. Even Chat Moss, between Liverpool and Manchester, which was lately nothing but a quaking body of peat to a great depth, is beginning to be covered with green fields and farm buildings, in consequence of the establishment of the Manchester and Liverpool railway. To those engaged in these improvements this article may not be altogether uninteresting. We refer for further information to the communications, surveys, and reports made to the Board of Agriculture, and to various articles in the *Farmer's Magazine*, and the *Annals of Agriculture*, by A. Young.

In order to encourage the cultivation of poor wastes, and at the same time to secure the right to tithes, when the land should have been fully improved, an Act of Parliament was passed in the reign of Edward III. (2 and 3 Edw. VI. c. 13), by which *barren* and *heath* land brought into cultivation, and converted into arable land or meadow, shall pay tithe of corn and hay after seven years from the first cultivation, which seems to release such lands from all claims for tithes during that period, other than had been paid before in its waste state: viz., that of wool, lamb, and the milk or young of cattle depastured on it. But by the interpretation given to the words of the statute in several important decisions, it is only the very *poorest soils*, which will produce nothing without extraordinary manuring, and which are *suapte natura steriles*, which have enjoyed this exemption; but woodland grubbed up, commons inclosed, fens drained, and lands recovered from the sea by embankments, at a great expense, unless protected by an especial act of parliament obtained for the purpose, are subject to a payment of one-tenth of the produce, or an equivalent composition, from the first year that any crop is produced upon them.

BARRI, GIRALDUS DE, or SYLVESTER GIRALDUS, more generally known by the name of GIRALDUS CAMBRENSIS, was descended from an illustrious lineage. He was the fourth son of William de Barri, by Angharath, daughter of Nesta, daughter of Rhys ap Theodor, Prince of South Wales, and was born in or about 1146, at the castle of Manorbeer, in Pembrokeshire. Being a younger brother, and intended for the church, he was sent to St. David's, where his uncle, David Fitzgerald, at that time bishop of the see, undertook the care of his education. Giraldus, in the history of his own life, acknowledges that in early youth he was too negligent and playful, but his uncle and his masters remonstrated so sharply with him that he became diligent, and soon surpassed his fellow-students. When twenty years of age he was sent to the University of Paris, where he remained for three years, and acquired great fame for his skill in rhetoric and the belles-lettres. On his return to England, about 1172, he entered into holy orders, and obtained preferment both in England and Wales. He now devoted his whole mind to promote the interests of the church. Finding that the Welsh were very reluctant in paying tithes of wool and cheese (more particularly in the districts of Pembroke and Cardigan), he applied to Richard, Archbishop of Canterbury, and obtained the appointment of legate in Wales to rectify these and other abuses. He executed this commission with great spirit and success. He likewise attempted to reform the morals of the clergy, and was peculiarly severe against all priests who had wives; these he called concubines, and insisted upon their dismission. The old archdeacon of Brecknock, who opposed his remonstrances on this account, was at first suspended, and afterwards deprived, a sufficient maintenance only being assigned to him from his former preferment, which was bestowed upon the officious legate.

On the death of David Fitzgerald his uncle, the canons of St. David's met in council, and, after a long debate, elected Giraldus to be his successor; but the archdeacon thinking the election made too hastily, and not according to the usual forms, went on the following morning to the chapter, and, contrary to the advice of his friends, renounced it. His reason was that the necessary application had not been previously made to the king or his justiciary for the royal assent. The chapter, however, persisted in their choice, which so highly displeased King Henry II. that he threatened to dispossess them of their lands and revenues. The king summoned a council, and submitted the case to the consideration of Richard, Archbishop of Canterbury, and his suffragan bishops, desiring them to recommend a fit person to fill the vacant see. They unanimously recommended Giraldus as a man of learning and spirit, but the king objected; he considered that it was not expedient to elect too upright and active a person to the vacant see, especially one whose relationship to Prince Rhys, and to almost all the greater families of Wales, might prove detrimental to his crown. Peter de Leia, a Cluniac monk of Wenlock in Shropshire, was, in consequence, chosen Bishop of St. David's; and Giraldus relieved his disappointment by foreign travel. He again retired to the University of Paris, and prosecuted his studies chiefly in civil and canon law, the professorship of which last, in that university, was offered to him in 1179. He returned home in 1180, and, proceeding to his archdeaconry, found the diocese of St. David's in confusion. Peter de Leia had quarrelled with the canons and inhabitants, and was driven from his see, the administration of which was now committed by the Archbishop of Canterbury to Giraldus. He held it three or four years, when the bishop was restored.

About the year 1184 Giraldus was induced by King Henry II. to reside at court; soon after which he was sent as a pacificator to Wales. Having fulfilled his commission to the king's satisfaction, he returned to court, was made one of the royal chaplains, and had promises of great preferment, which were not fulfilled, probably because Giraldus desired to have it in Wales.

In 1185 he was appointed preceptor to Prince John, whom he accompanied to Ireland as secretary and privy-councillor; but the prince using youthful counsels instead of those of the old adventurers who were best acquainted with the affairs of the country, returned after a residence of some months, leaving Giraldus behind, who continued there to complete and digest the collections he was making for his two works on the topography and conquest of Ireland. Previous to leaving that country the prince offered Giraldus the Irish bishoprics of Fernes and Leighlin, and on his refusing each of them separately, proposed, if he would accept them, to consolidate the two; but this he also refused. Sir Richard Hoare says he likewise refused at this or a subsequent period the archbishopric of Cashel. In 1187 he returned to England, when, having finished his work on the topography of Ireland, he read its three divisions (*distinctiones*), on three separate days, before public audiences in the University of Oxford. On the first day he entertained all the poor of the town; on the next day the doctors and scholars of fame and reputation; on the third day the scholars of the lower rank, the soldiers and burgesses.

In 1188 he accompanied Baldwin, Archbishop of Canterbury, in a journey (which has been already mentioned in the notice of that prelate) through the rough and mountainous parts of Wales, in order to preach to the people the necessity of a crusade. The more lasting fruit of this journey was his work entitled *Itinerarium Cambriæ*.

In 1189 Giraldus attended King Henry II. in his expedition into France, and remained there till after the king's death, when Richard I. sent him back to preserve the peace of Wales, and even appointed him coadjutor to William Longchamp, Bishop of Ely, in the regency of the kingdom. After refusing the bishoprics of Bangor and Llandaff, in hopes to succeed to St. David's, his favourite object, that see became vacant in 1199, when he was unanimously elected to it by the chapter. Yet here he was again disappointed by the opposition of Hubert, Archbishop of Canterbury, upon the same grounds which had been alleged on former occasions by King Henry. He thus became involved in a contest which lasted five years, during which he took three journeys to Rome, and was at last defeated, the pope passing a definitive sentence, and declaring his election null.

Soon after this Giraldus resigned his archdeaconry in favour of Philip, the youngest son of his brother, Philip de Barri, for whom he always retained the kindest affection. Sir R. C. Hoare says, that besides the archdeaconry of Brecknock and Prebend of Mathrey, in Pembrokeshire, which Giraldus resigned to his nephew, he was possessed of the livings of Nangle and Tenby in the same county: he was also prebendary of the church of Hereford, and held the living of Chesterton, in Oxfordshire, to which last Selden, in his book *On Tithes*, says he was presented by Gerard de Camvile, patron and lord of Middleton, in Oxfordshire, in the reign of Henry II.

Giraldus passed the last seventeen years of his life in study, revising his former literary works and composing others, of which he has himself given a copious index. In the midst of these occupations he received once more an offer of the bishopric of St David's, and would have met with no opposition from the court, but from the dishonourable terms on which it was proffered, he refused the ecclesiastical dignity which had so long been the object of his earnest wishes.

He died at St David's, in the 74th year of his age, and was buried in the cathedral church, where his effigy still remains upon an altar tomb beneath an ornamented arch.

'Noble in his birth,' says Sir R C Hoare, 'and comely in his person, mild in his manners and affable in his conversation, zealous, active, and undaunted in maintaining the rights and dignities of his church, moral in his character and orthodox in his principles, charitable and disinterested, though ambitious, learned, though superstitious,—such was Giraldus. And in whatever point of view we examine the character of this extraordinary man, whether as a scholar, a patriot, or a divine, we may justly consider him as one of the brightest luminaries that adorned the annals of the twelfth century. As an historian however he was full of credulity, and as a man, as his works prove, one of the vainest upon record.'

Giraldus has himself given us a catalogue of his works as well as a long history of his actions, both printed by Wharton. Other lists will be found in Fabricius's *Bibliotheca Med et Inf Latinitatis*, edit Patav 1754, tom iii. p 62, and in the notes to his life in the *Biogr Britannica*, edit 1778, vol i pp 610, 642 641. Sir Richard Hoare has given us a full account of such manuscripts of his works as exist in the several libraries in the British Museum, in the Archiepiscopal Library at Lambeth, at Bene't (Corpus Christi) College, and in the public library at Cambridge, and in the Bodleian. Those printed are, 1 *Itinerarium Cambriæ*, 12mo Lond 1585 and in Camden's *Angl Norm &c Script* fol Francof 1602, pp 815 878. 2 *Topographia Hiberniæ*, Camd ut supr pp 692 754. 3 *Expugnatio Hiberniæ*, ibid pp 755—813. 4 *Descriptio Cambriæ* ibid pp 879—892. 5. The following pieces by Giraldus, printed in the second volume of Wharton's *Anglia Sacra*:—*Vita Galfridi Archiepiscopi Eboracensis* p 375. *Vitæ Episcoporum Lincolniensium*, pp 410—419, *Vita sex Episcoporum coætaneorum* pp 420 433, *Epistola ad Steph Langton Archiep Cantuar* p 435, *Epistola ad Capitulum Herefordense de Libris a se scriptis*, pp 439—444, *Catalogus brevior Librorum suorum*, p 445. *Liber secundus de Descriptione Walliæ*, pp 447 455. *Retractationes*, pp 455—456, *De Rebus a se gestis libri iii* pp 457—513; *De Jure et Statu Menevensis Ecclesiæ Distinctiones vii* pp 514 627, *Vita S Davidis Archiepiscopi Menevensis*, pp 628—640. 6 *Gemma Ecclesiastica* mentioned by Chalmers, *Biogr Dict* vol ii p 56, as published at Mentz in 1519, without the author's name, under the title of *Gemma Animæ*. John Stowe's translations from Giraldus's historical works relating to Wales and Ireland are among the Harleian Manuscripts in the Museum, Nos 544 and 561, in his own handwriting. Sir Richard Colt Hoare, in 1806, published the *Itinerary of Archbishop Baldwin through Wales*, translated into English, and illustrated with views, annotations, and a life of Giraldus, 2 vols 4to. To this work the preceding account is much indebted, as well as to the life in the *Biographia Britannica*, article 'Barry,' to Bale, *Illustr Script*, Wharton, *Anglia Sacra*, vol ii pp. 457 513, and Fabricius's *Bibliotheca Med et Inf Latinitatis*. Something also was translated from Giraldus concerning Ireland in Harrison's edition of Holinshed's *Chronicle*, vol i fol 1586.

BARRICADE, a military term for a fence formed in haste with baskets of earth, trees, palisades, or the like, to create obstruction, and preserve an army from the shot or assault of an enemy. Carts, waggons, &c., are sometimes made use of for the same purpose, viz, to keep back both horse and foot for some time. In regular barricades, the most usual materials consist of pales or stakes, crossed with battoons, and shod with iron at the feet, usually set up in passages or breaches. On board of ship, barricade means a strong wooden rail supported by stanchions extending across the foremost part of the quarter-deck. The upper part, which contains a double rope-netting, above the rail, is stuffed with full hammocks, to intercept the motion, and prevent the execution of small shot in an action. (See James's *Military Dictionary*; Falconer's *Marine Dictionary*, enlarged by Dr William Burney Lond. 1815.)

BARRIER, from the French *barrière*, in a general sense, means any piece of wood-work or other construction which presents an obstacle to passing through the place where it is fixed; hence it comes to signify a fortification, or strong place, on the frontiers of a country. Thus we used formerly to speak of the barrier-fortresses of Flanders. It is likewise a kind of fence composed of stakes and transoms, or overthwart rafters, erected to defend the entrance of a passage, intrenchment, or the like. In the middle of the barrier is a moveable bar of wood, which is opened and shut at pleasure. It also implies a gate made of wooden bars, about five feet long, perpendicular to the horizon, and kept together by two long bars going across, and another crossing diagonally. A barrier is commonly set up in a void space, between the citadel and the town, in half moons, &c (See James's *Military Dictionary*, v Barrier.)

BARRIER ISLAND, called by the natives OTEA, an island off the east coast of North Island, one of the group to which the name of New Zealand has been given. Barrier Island which is eighteen miles long from north to south, and thirteen miles broad in its broadest part, lies off the mouth of the river Thames, in 36° 12′ N. lat, and 175° 21′ E long.

BARRIER, TREATY OF THE, signed at Antwerp, November 15, 1715 between the Emperor of Germany, the King of Great Britain and the States General of the United Provinces. The natural boundaries which divide kingdoms from each other are seas rivers and mountains. France, for instance is bounded on the west and on the south west respectively by the ocean and the Pyrenees and the Alps and the Rhine form its frontier to the south east and east. These are boundaries marked out by nature. In the article 'Balance of Power' an exposition is given of the principles according to which it is sometimes considered expedient to fix a limit to a state, for the purpose of duly regulating its power with regard to other countries. From inspecting a map, it might appear that the natural boundary of France towards the north is the Rhine, but it has been thought that the extension of her territory to that frontier would give her a dangerous influence in the affairs of Europe, and hence, in accordance with the principles by which the balance of power is regulated, at the last great Congress of the European Powers at Vienna, a political boundary was defined on that side of France where none naturally exists. The Treaty of the Barrier is an instance of a similar species of political adjustment. It was dictated by the jealousy which the States General of Holland felt of the power of France, and its object was to define the northern limits of the latter country by a new frontier, the strong places of which, although in many cases belonging to Austria, were to be garrisoned by Dutch troops and in some cases by the troops of both powers. One of the chief articles of this treaty guaranteed to the House of Austria the succession to the Austrian possessions in the Low Countries, a provision rendered expedient by the example which had just been afforded to Europe of the grandson of Louis XIV acquiring the Spanish throne, to which, under the previous union of the Austrian and Spanish monarchies, the possessions in question had been attached. In fact the main points in the Treaty of the Barrier had developed themselves in successive negotiations during a period of fifteen years, in which the succession to the throne of Spain was strongly contested by the different powers of Europe, as it respected its influence on the balance of European power.

In the grand alliance of 1701, the States-General made some stipulations for a new frontier to France; and its limits were detailed in a private treaty concluded in 1709 between England and the States-General. By another treaty, on the Protestant succession in England being guaranteed by the States-General, Queen Anne promised to exercise her policy in such a manner as to obtain for the Dutch the right of garrisoning certain fortified places in the Spanish Low Countries, which, moreover, should serve as the barrier to the United Provinces against France; the States-General charging themselves with the support of the garrisons, and with the proper maintenance of the fortifications. England engaged to furnish 10,000 men and twenty ships of war in case the barrier fixed by this treaty was attacked; and if this aid proved insufficient, she engaged to enter actively into a state of warfare with the aggressor. The above engagements were made during the war relative

to the Spanish succession, which was terminated by the peace of Utrecht in 1713. The Emperor of Germany refused to accept the articles of the treaty so far as they affected him; and in 1714 he concluded a treaty of peace with France, by which the Spanish Low Countries were ceded to him. Afterwards, when above thirteen months had been spent in negotiations, he gave in his adherence to the Treaty of the Barrier on the 15th November, 1715. The general tenor of the previous negotiations to which we have alluded prevails in the articles of this treaty, which are twenty-nine in number. By one of them the emperor consented, as had been previously arranged, that the Dutch should garrison certain towns in the Austrian Low Countries with their troops. (Koch, *Traités de Paix; L'Art de vérifier les Dates.*)

BARRING-OUT, a practice formerly common in schools, and still practised in some schools in the north of England. Dr. Johnson, in his *Life of Addison*, says, that in 1683, in the beginning of Addison's twelfth year, 'his father being made dean of Lichfield, naturally carried his family to his new residence, and I believe placed him for some time, probably not long, under Mr. Shaw, then master of the school at Lichfield, father of the late Dr. Peter Shaw. Of this interval his biographers have given no account, and I know it only from a story of a *barring-out*, told me when I was a boy, by Andrew Corbet of Shropshire, who had heard it from Mr. Pigot, his uncle.' 'The practice of barring-out,' he adds, 'was a savage license practised in many schools at the end of the last century, by which the boys, when the periodical vacation drew near, growing petulant at the approach of liberty, some days before the time of regular recess, took possession of the school, of which they barred the doors, and bade their master defiance from the windows. It is not easy to suppose that on such occasions the master would do more than laugh: yet, if tradition may be credited, he often struggled hard to force or surprise the garrison. The master, when Pigot was a schoolboy, was barred out at Lichfield, and the whole operation, as he said, was planned and conducted by Addison.' (Johnson's *Works*, Murphy's edit. 1806, vol. x. pp. 73, 74.)

Brand, in his *Popular Antiquities*, vol. i. pp. 346, 347, speaks of the custom as still existing in the grammar-school of the city of Durham, and at the school at Houghton-le-Spring.

In the statutes of Witton School, near Northwich, in Cheshire, founded by Sir John Deane, A.D. 1558, the observance of this practice by the scholars is directed. (See Carlisle's *Description of Endowed Grammar Schools*, vol. i. p. 133.) It prevailed long also at Rothbury, near Alnwick, in Northumberland. (*Ibid.* vol. ii. p. 259.) An entertaining story of a barring-out is given in vol. vi. of Miss Edgeworth's *Parent's Assistant*, 12mo. Lond. 1813. Hutchinson, in his *History of Cumberland*, vol. ii. p. 322, says this custom was used by the scholars of the free-school of Bromfield in that county, about the beginning of Lent, or, in the more expressive phraseology of the country, at Fasting's Even.

BARRINGTON, THE HONOURABLE DAINES, a learned antiquary, lawyer, and naturalist, was the fourth son of John Shute, first Viscount Barrington, well known from his connexion with the Harburgh lottery (on account of which he was expelled the House of Commons), and the author of the *Miscellanea Sacra* and various other works. His mother was a daughter of Sir William Daines. Daines Barrington was born in 1727. After having concluded his course of general education at Oxford, he was entered as a student at the Inner Temple, and was called to the bar in Hilary Term, 1749. Though he never acquired any eminence in practice, his family possessed considerable influence with some of the most powerful members of the Pelham Administration, by means of which early in life he obtained successively several lucrative offices. In 1751 he became Marshal of the Court of Admiralty, and resigned that office on being appointed secretary for the affairs of Greenwich Hospital in 1753. He appears for a short time to have travelled the Oxford circuit, and he was junior counsel for the prosecution on the well-known trial of Miss Blandy, for the murder of her father, in 1752. Shortly after receiving the appointment of secretary for Greenwich Hospital he was elected Recorder of Bristol; and in 1757 was made a puisne Welsh judge. He presided with Lord Kenyon at the great sessions for Denbighshire, in 1783, when the trial of the Dean of St. Asaph for a seditious libel was to have taken place, but was put off on the ground of attempts to prejudice the minds of the jury. He continued to hold the office of Welsh judge until the year 1785, when, being possessed of an ample income, he gave up all public employments except the place of commissary-general of the stores at Gibraltar, and retired to his chambers in the Inner Temple, of which society he was a bencher. He died in the Temple on the 11th March, 1800.

The most important of Mr. Barrington's numerous writings is a book entitled *Observations upon the Statutes, chiefly the more antient, from Magna Charta to the* 21 *Jac. I. c.* 27, which was first published in 1766. Four editions subsequently appeared under the superintendence of the author, in the course of which the work was so much enlarged and improved by additional remarks and facts as to reduce the value of the original edition to little more than that of waste paper. The design was to introduce a project, which is detailed in an appendix, for repealing obsolete and useless statutes, and reducing acts which relate to the same subject to one uniform and consistent law. It is a work which fully deserves the high reputation it has obtained; the illustrations of the statutes noticed are extremely curious, and display not only extensive antiquarian research, but a familiar acquaintance with the civil law and the municipal institutions of Europe; and the whole subject is treated in such a manner as to interest the general reader as well as the professional student. Mr. Barrington devoted much attention to the investigation of the celebrated geographical problem respecting a North West Passage. He examined himself several masters of vessels employed in the whale-fishery, and collected on this subject a great mass of historical, traditionary, and conjectural evidence, which he detailed in several papers read by him to the Royal Society; and he is said to have prevailed upon the president and council of that society, in 1773, to make such a representation to Lord Sandwich, then at the head of the Admiralty, of the practicability of a North-West Passage, that the government were induced to fit out an expedition under the command of Captain Phipps, afterwards Lord Mulgrave, for the purpose of making discoveries in the North Seas. Mr. Barrington published the result of his researches in 1775; and when this subject came again under discussion, in 1818, his tracts were republished with an appendix by Colonel Beaufoy. Mr. Barrington was also the author of several papers in the *Archæologia* on local antiquities, and of a great variety of essays in the *Philosophical Transactions*, and other periodical publications, on subjects connected with natural history. Many of these were collected and published by himself in 1781 under the title of *Miscellanies on various Subjects*. A particular enumeration of all Mr. Barrington's works is given in Nichols's *Literary Anecdotes of the Eighteenth Century*, vol. iii. p. 3 (note), and in the *Gentleman's Magazine*, vol. lxx. p. 291.

BARRIS, a name given on the coast of Guinea to two very different animals, the chimpanzee, or African ape (*Pithecus troglodytes*), and the mandril (*Cynocephalus mormon*), a large and formidable species of baboon. [See the articles APE and BABOON.]

BARRISTER. The etymology of this word has been variously given by different authors, and it would be unprofitable to enumerate the fanciful derivations which have been assigned to it. But, though the precise etymology of the term is uncertain, there is little doubt that it arose from the local arrangement of the halls of the different Inns of Court, which, for several centuries, have composed in England a kind of university for the education of advocates. [See INNS OF COURT.] The benchers and readers, being the superiors of each house, occupied on public occasions of assembly the upper end of the hall, which was raised on a *dais* and separated from the rest of the building by a bar. The next in degree were the *utter* barristers, who, after they had attained a certain standing, were called from the body of the hall to the bar (*i.e.* to the first place outside the bar), for the purpose of taking a principal part in the mootings or exercises of the house; and hence they probably derived the name of *utter* or outer barristers. The other members of the Inn, consisting of students of the law under the degree of utter barristers, took their places nearer to the centre of the hall and farther from the bar, and from this manner of distribution appear to have been called *inner* barristers. The distinction between utter and inner barristers is at the present day wholly abolished, the former being called barristers generally, and the latter falling under the denomination of students.

The degree of utter barrister, though it gave rank and precedence in the Inn of Court, and placed the individual in a class from which advocates were always taken, did not originally communicate any authority to plead in courts of justice. In the old reports of the proceedings of courts, the term is wholly unknown; serjeants and apprentices at law, who are supposed by Dugdale to be the same persons,* being the only pleaders or advocates mentioned in the earlier year-books. In the time of Stow, however, who wrote in the latter part of Elizabeth's reign, it is clear that utter barristers were entitled to act as advocates, as he expressly says that persons called to that degree are 'so enabled to be common councellors, and to practice the law both in their chambers and at the barres.' The exact course of legal education pursued at the Inns of Court before the Commonwealth is extremely uncertain, but it appears to have consisted almost entirely of the exercises called *readings* and *mootings*, which have been described by several antient writers. The *readings* in the superior or larger houses were thus conducted:—The benchers annually chose from their own body two readers, whose duty it was to read openly to the society in their public hall, at least twice in the year. On these occasions, which were observed with great solemnity, the reader selected some statute which he made the subject of formal examination and discussion. He first recited the doubts and questions which had arisen, or which might by possibility arise, upon the several clauses of the statute, and then briefly declared his own judgment upon them. The questions thus stated were then debated by the utter barristers present with the reader, after which the judges and serjeants, several of whom were usually present, pronounced their opinions *seriatim* upon the points which had been raised. Readings of this kind were often published, and it is to this practice of the Inns of Court that we are indebted for some of the most profound juridical arguments in our language, such as Callis's reading on the Statute of Sewers, and Lord Bacon's on the Statute of Uses.

The process of *mooting* in the Inns of Court differed considerably from *reading*, though the general object of both was the same. On these occasions, the reader of the Inn for the time being, with two or more benchers, presided in the open hall. On each side of the bench table were two inner barristers, who declared in law French some kind of action, previously devised by them, and which always contained some nice and doubtful points of law, the one stating the case for the plaintiff, and the other the case for the defendant. The points of law arising in this fictitious case were then argued by two utter barristers, after which the reader and the benchers closed the proceeding by declaring their opinions *seriatim*. These exercises appear to have lost much of their utility in the time of Lord Coke, who, in the *First Institute*, p. 280 *a*, praises the antient readings, but says that the modern performances were of no authority. Roger North says that Lord Keeper Guildford was one of the last persons who read in the Temple according to the antient spirit of the institution. It is, however, beyond all doubt, that, as far back as we have any distinct memorials, all advocates must have passed through the mode of preparation adopted in the Inns of Court.

The serjeants, who, before the allowance of utter barristers to plead in courts, appear to have been the only advocates, were called from the Inns of Court by the king's writ, which was only issued at the discretion of the crown, and generally as a matter of favour; and indeed this continues to be the case at the present day. In process of time it became convenient and necessary to enable utter barristers to practise; but some time after they began to act as advocates in the superior courts, the terms upon which they were called to the bar, and allowed to plead, were prescribed by the Privy Council. Thus an order of council, regulating the proceedings of all the Inns of Court in this respect, dated Easter Term, 1574, and signed by Sir Nicholas Bacon as lord keeper, and several lords of council, directs that 'none be called to the utter bar but by the ordinary council of the House (*i. e.* the Inn), in their general ordinary councils in term time; also, that none shall be utter barristers without having performed a certain number of mootings; also, that none shall be admitted to plead in any of the courts at Westminster, or to sign pleadings, unless he be a reader, bencher, or five years' utter barrister, and continuing that time in exercises of learning; also, that none shall plead before justices of assize unless allowed in the courts of Westminster, or allowed by the justices of assize.' (See Dugdale's *Origines Juridiciales*.) This appears to be the last instance of the immediate interference of the Privy Council with the arrangements of the Inns of Court respecting calls to the bar. In the reigns of James I. and Charles I., the judges and benchers of the several Inns conjointly made orders on this subject, and, since the Commonwealth, the authority to call persons to the degree of barrister-at-law has been tacitly relinquished to the benchers of the different societies, and is now considered to be delegated to them from the judges of the superior courts. In conformity with this view of the subject, the practice has been, in the several cases of a rejection of applications to be called to the bar which have lately happened, to appeal to the judges, who either confirm or reverse the decision of the benchers. From the history of the system, however, it would appear as if the judges themselves possessed only a delegated authority from the crown.

Previously to a general arrangement made by all the Inns of Court in 1762, the qualifications required for being called to the bar varied extremely, and no uniform rule was observed at the different houses. In the first year of the reign of James I. it was solemnly ordered by a regulation signed by Sir Edward Coke, Sir Francis Bacon and other distinguished names, that no person should be admitted into any of the Inns of Court *who was not a gentleman by descent*. Other regulations were occasionally made, as to the length of standing required, and the number of persons to be called at each time, which were often absurd and inconsistent with each other. The greatest inconvenience, however, arose from the absence of uniformity in the practice of the different Inns, as to the qualifications which they respectively required. To remedy this evil, it was determined, in 1762, by the concurrence of all the Inns of Court, to adopt a common set of rules for their guidance in this respect; and at the present day, the general rule as to qualification in all the Inns of Court is, that a person, in order to entitle himself to be called to the bar, must be twenty-one years of age, have kept twelve terms, and have been for five years, at the least, a member of the society. If he be a Master or Bachelor of Arts of either of the English universities or of Trinity College, Dublin, it is sufficient if he has kept twelve terms and has been three years a member of the Inn by which he desires to be called to the bar. By an order made by the benchers of the Inner Temple, in Trinity Term, 1829, every person proposed for admission to that house must, previously to his admission, undergo an examination by two barristers appointed by the bench, who are required to certify whether the individual is proficient in 'classical attainments and the general subjects of a liberal education.' This regulation has not been adopted at any of the other three Inns of Court. The expense of being called to the bar amounts to between 80*l.* and 90*l.*, exclusive of the three years' commons and the admission fees. In order to qualify a person for the bar in Ireland, it is necessary that he should have kept eight terms at one of the four Inns of Court in London, and nine terms at the King's Inn in Dublin. [See COUNSEL; INNS OF COURT.]

BARRISTER. In Scotland, there was (if we except public *Notaries*) till recent times but one order of law practitioners. They had various names,—procurator, advocate, prolocutor, forespeaker: of which the two former were the most frequent, and the first is to this day the judicial style of the advocates of the college of justice, the advocate of the church of Scotland, and the fiscals and practitioners of the local courts. They were at once the chamber-counsel, the barrister, and the attorney of their clients; and, in the common law courts at least, all pleaded *within* the bar. This continued to be the case till the institution of the Court of Session in 1532, when it was enacted 'that nane advocat nor procuratour within the bar stand to pley, bot passe furthwith with the partie, except the king's advocat;'—an enactment which, being limited to the Court of Session and inferior courts, is unknown in the Court of Justiciary, where to this day, both at Edinburgh, and on the circuit, all plead as of old *within* the bar. We also afterwards find in the records a new class of law practitioners under the name of *Writers*, acting below the bar; but against them the censures of the

* It might be shown, by many instances, that serjeants are comprehended under the term *apprentices*. Thus in Plowden's *Reports*, vol. i. p. 213, the great case of the Duchy of Lancaster is said to have been argued, among others, by 'Carrel, apprentice, and Plowden, apprentice.' This argument took place in the fourth year of the reign of Elizabeth; and it appears from the *Origines Juridiciales*, p. 156, that both Carrel and Plowden had been, before that time, created serjeants. The Latin designation of serjeant in legal documents is *serviens ad legem*.

court were constantly proclaimed, and they were ordered to be *extruded* from the court; and we also find that, by the Secretary of State's injunctions in 1594, the *Writers to the Signet* were forbidden to act as agents. The *Writers*, however, had taught division of labour in the legal profession; and the business of the Court of Session accordingly was soon divided between the advocates and their clerks—all third persons except whom were, by act of Sederunt, 13th July, 1596, prohibited to act as agents, and this order was renewed by statute 1672, c. 16, s. 31, and by act of Sederunt, 26 February, 1678. By a bye-law of the writers to the Signet, also, December, 1676, any member of that body who should act as an agent was made liable to be prosecuted. Notwithstanding, however, the writers to the Signet came to act as agents; and in the course of last century, a third class of agents was established as Solicitors before the Supreme Courts. These several classes of agents can act in court only below the bar; whereas the advocates are not confined to the bar, but remain undivested (except by usage) of their antient right to act both as counsel and attorney.

Thus far as to the Court of Session. In regard to the local courts, the resident practisers are styled *procurators*, except at Aberdeen, where, agreeably to an act of court passed by Mr. Sheriff Crombie in 1633 (perhaps the first local-court regulation in Scotland subsequent to the establishment of the Court of Session), the practitioners are admitted to practise (as in the Court of Session) as 'advocates and procurators,' and are usually styled Advocates in Aberdeen. These, and the procurators of the other local courts, act, as of old, in every branch of juridical business.

The advocates of the College of Justice, who form the Bar of Scotland, are not restricted, as all the other classes of law practitioners in Scotland are, to the court which admits them, but are entitled to act in every court in the kingdom (except where specially excluded by statute), and they go on circuit with the superior courts: but no practising member of the bar is permanently resident in any of the provincial towns. There is not yet, therefore, any *provincial bar* in Scotland, as in England; nor are the procurators of the local courts marshalled into one uniform corps, but are severally admitted by the respective courts on varying qualifications, and without any limitation in point of numbers—which, indeed, is likewise the case with the several classes of agents in the Court of Session.

Till the institution of the Court of Session in the beginning of the sixteenth century, no course or exhibition of legal learning appears to have been required to qualify for the legal profession in Scotland. It was still later before any legal qualification was necessary for the Scottish bench; and to this day there is none for the office of Lord Justice General, which was formerly the highest judicial office in the kingdom, but is now a sinecure, and its duties are discharged by the Lord Justice Clerk, who, though since the Union a Lord of Session, is not it seems necessarily so, nor even of the legal profession. The office of Sheriff was regulated in the time of King George II., but that of Sheriff Substitute—who is the resident county judge—is yet held in some instances by medical and military men. The first advocates of the College of Justice were mostly, if not all, ecclesiastics, conversant with the canon and civil laws; and, till the Union with England, a knowledge of these laws was the chief requisite to admission to the Scottish bar. Indeed, till the above æra, there was no provision for the study of the law in Scotland, except the canon and civil law chairs of the universities; and accordingly it was usual, till our own day, to prepare for the Scottish bar at some one of the foreign colleges, of which those of France and Italy were the most frequented till the lustre of the Cujacian school in the Low Countries, aiding the connexion which arose between Scotland and them at the Reformation, drew the student thither. In 1722, however, a chair of *Scots law* was erected at Edinburgh; and the present legal qualifications to admission to the Scots bar, are a knowledge of both the civil and Scots laws—on both of which the candidate undergoes an examination, first on the civil law, and then, at the end of a twelvemonth, on the Scots law. He is afterwards assigned a title on the civil law, on which he writes and publicly defends or *propugns* a thesis. Then, being introduced by a member of the bar, the oaths of allegiance and of office are administered to him, after which he is admitted to the bar by the court.

It was formerly the practice for the candidate to make a public oration to the court before admission; and when admitted, he is entitled to remain *covered*. Accordingly, we find that Alexander Seton, afterwards Lord Chancellor of Scotland, 'made his public lesson of the law before King James VI., the Senators of the College of Justice, and Advocates present in the Chapel Royal of Holyrood House, in his lawyer-gown and four-nooked cap (as lawyers used to pass their tryals in the Universities abroad), to the great applause of the king and all present: after which he was received by the College of Justice as ane lawyer.' And so, when King Charles removed Oliphant, K.A., from the bench, and issued an ordinance that no officer of state should for the future have the place of an ordinary lord there, the Court of Session passed an act of Sederunt, acknowledging the right of his assistant and successor, Hope, K.A., to plead covered. This, it is indeed said, was a privilege granted to Hope personally, in consideration of his having a son, or as some say two sons, and others, not content with *one* or *two*, roundly assert *three* sons on the bench (which last version of the story is gravely repeated, *Encyclop. Brit.*, voce Advocate, Lord or King's,), who, like the other judges, sat with his hat on. But the fact is, Hope had *no* son on the bench when the act of Sederunt referred to was passed, nor for six years afterwards; and the acknowledgment then made was renewed to Sir Thomas Nicolson, K.A., with other known privileges of the office of King's Advocate. We therefore take the act of Sederunt to contain recognition of a right common to the whole faculty, and made to the King's Advocate as the head of the body under the bench. That the judges wore their hats on the bench till recent times is certain; and at admissions to both bench and bar the hat is put on to this day. A general parity indeed prevailed among the members of the faculty: the King's Advocate and others were long members of both bench and bar; and in former times, when the judges were removeable at pleasure, if a judge was removed from the bench he resumed his practice at the bar. This, for example, President Balfour did on his removal from the chair. If we except the *Dean*, also, there are no *degrees* at the Scottish bar: patents of precedence and pre audience are unknown; and the only counsel who in the Court of Session remain *within* the bar, are the King's Advocate and Solicitor General; the latter of whom has not been thus distinguished in the *Inner House* much more than a century, though, in the Outer House, he and the depute-advocates have had the privilege since the Restoration. The faculty of advocates form a part of the College of Justice: which is composed of the judges, advocates, agents, and other officers of the superior courts; but, so far as the records show, there never was any *commoning* together, as in other colleges; and each of the above bodies is, as to internal arrangements, independent. The fees of entry to the faculty amount at present to about 350*l*; of which upwards of 250*l*. is deposited before being taken on the civil law examination.

BARROCCIO, FEDERIGO, was the son of an eminent sculptor, and born at Urbino, in 1528. His first master was Battista Venezano, under whom he studied till his twentieth year, when he went to Rome, where he practised under the auspices of Cardinal della Rovera, whose palace he ornamented with several frescoes. He returned to his native town after an absence of four years, and gave proof in a picture of St. Margaret, painted for the Confraternity of the Holy Sacrament, of the vast improvement that he had made in his art during his residence in the imperial city. This, and other works, procured him such reputation, that he received an invitation from Pope Pius X. to assist in the embellishments of the Belvedere palace, on which Zucchero was also engaged. Here he executed the Annunciation in fresco on one of the ceilings, and a picture of the Holy Virgin with the infant Saviour, with Saints, &c. Having finished these commissions, he returned to Urbino, and contributed to the Cathedral of St. Lorenzo and Perugia an altar-piece of the Taking Down from the Cross. During the pontificate of Gregory XIII., Barroccio again visited Rome, where he painted a picture of the Last Supper, for the Chiesa della Minerva; also, for the Chiesa Nuova, the Visitation of the Virgin Mary to Elizabeth, and the Presentation in the Temple. These two last are considered to be his finest performances.

Barroccio's style of colouring and effect was formed on that of Correggio, but it is the usual fate of imitators to transmit an exaggeration of some prominent peculiarity, rather than the intrinsic excellence of their models. Thus, in Barroccio's faces we recognize a style of character similar to those of Correggio; but that which in the hands of the

latter artist was moulded into beauty, strikes us in the works of his imitator as merely something odd and peculiar. The same observation applies to his colouring: the tints of Correggio are in the highest degree pure, simple, and harmonious, while those of Barroccio, however meant to resemble them, are overcharged and artificial. This is strikingly apparent in the extremities of his figures, which are heightened with red to a degree of offensive mannerism; his flesh tones generally appear to be a greenish substratum surmounted with pink. These defects, perhaps, are chiefly chargeable against his smaller performances, and there is a strong example of them in his picture of the Holy Family in the British National Gallery. His large works are excellent in that quality of art called *impasta*, exhibiting a richness of surface which Sir Joshua Reynolds has greatly commended, and did not disdain to imitate. There is in the Vatican a picture by Barroccio, of the size of life, representing a female pilgrim overtaken by a tempest on the top of a mountain, painted with a breadth and simplicity, both in respect to colouring and design, which would have ranked Barroccio among the highest practitioners in art, had all his works been executed in a similar spirit. Barroccio died at Urbino, in 1612, aged eighty-four. He sometimes handled the graver, and has left the following plates, executed with great spirit and correctness, although somewhat deficient in delicacy and finish: The Virgin and Christ appearing to St Francis, a large plate, arched; The Annunciation; St Francis receiving the Stigmata; The Virgin in the Clouds with the Infant Jesus, marked F. B. V. F.; The Virgin holding the Infant Saviour, a small plate, the lower part unfinished.

BARROIS, LE, a district deriving its name from the town of *Bar-sur-Ornain*, otherwise *Bar-le-Duc*, included in most maps in the former province of Lorraine.

Frederick, Duke of Mosellana or Upper Lorraine, brother-in-law of Hugues Capet, having built the fortress of Bar, formed a domain, which he attached to it from part of the lands of the abbey of St Mihiel, of which he had rendered himself master. His authority over the territory of Mosellana was not properly hereditary, though his son and grandson succeeded him in it; but the domain attached to the fortress of Bar was hereditary, and it came by descent to Thierry, who first bore the title of Count of Bar. He died just at the commencement of the twelfth century. Soon after this time the Emperors of Germany claimed the district of Barrois as being within the limits of their dominions, which included Lorraine; and in 1354 the Emperor Charles IV. erected the district of Pont à Mousson (which appears to have been united by marriage in the hands of the same family with the district of Barrois) into a marquisate; but he does not appear to have had any just claim to superiority over the Counts of Bar. In 1357 the possessor of the territory of Bar, Robert, who had married the daughter of John, King of France, styles himself duke; but by whom the county had been erected into a duchy is very doubtful, neither is the exact time known, though it is supposed to have been in the above-mentioned year, viz., 1357. Edward, the son and successor of Robert, lost his life in the battle of Agincourt. The duchy afterwards came by inheritance (through females) to René of Anjou, Duke of Lorraine, Count of Provence, and King of Sicily. It was seized by Louis XI., but restored in the reign of his son Charles VIII. to the heirs of René, who were also Dukes of Lorraine, and the two duchies continued in the same family until the year 1737, except during a short interval (1659 to 1665) when it was in the hands of the French. The French kings were all along the feudal superiors of the Dukes of Bar, to whom, however, they granted sovereign rights (*droits regaliens*) in their duchy. It was occupied by the French again in the wars which Louis XIV. maintained against the empire.

By the successive treaties of Vienna in 1735, 1736, and 1738, Bar, with Lorraine, was ceded to Stanislaus Leskzinsky, the exiled King of Poland, with reversion to the crown of France, to which, upon the death of that Prince, it accordingly fell.

But Le Barrois, in the extent in which we shall now speak of it, is to be considered as comprehending much more than the above-mentioned domains of the Dukes of Bar. These constituted what was termed *Le Barrois Mouvant*,* and contained 218 towns, villages, or hamlets; there was besides the district of *Le Barrois-non-mouvant*, which contained 389 towns, villages, or hamlets, and consisted of many fiefs acquired at various times by the Dukes of Lorraine, which they held in full sovereignty, independent of France. These they annexed to *Le Barrois Mouvant*, after the latter came into their hands.

Le Barrois comprehended a very irregularly-shaped territory, intersected by the Toulois and Verdunois, or districts of Toul and Verdun. The greatest dimension was from north to south, and this, we presume, is the length given in the *Dictionnaire des Gaules, &c.*, of Expilly, as 32 leagues, equal to between 88 and 89 miles. The breadth was, according to the same authority, about 16 leagues, or rather better than 44 miles.

This country is watered by the Meuse, the Moselle, the Aire, the Ornain, the Saulx, the Ornes, and other streams. The Aire, which rises indeed in this district, but soon quits it, is a feeder of the Aisne. The Ornain and the Saulx, uniting their streams, flow into the Marne, and the Ornes flows into the Moselle. The atmosphere is rather foggy and cold, but is not considered unwholesome. The surface is various, being tolerably level in some parts, and in others swelling into hills of greater or less height. It yields grain of all kinds, and the produce in wine is considerable. There is much wood, and a considerable extent of pasture-land, in which the inhabitants rear a quantity of large and small cattle. Game, fish, and poultry are abundant. There are also, some mines of iron and other metals, quarries of good free stone, and some mineral springs.

Among the chief towns formerly comprehended in the Barrois are, Bar le Duc, the capital, population now 12,496; Pont à Mousson, on the Moselle, 6993; St Mihiel, on the Meuse, 5822; Ligny, on the Ornain, above Bar, 3212; Etain, on the Ornes, 3034; Longwy, 2483; and Longuyon, 1612, both in the northern part, near the frontier of Luxembourg; and Briey, on a small tributary of the Ornes, population 1755. The total number of towns, villages, and hamlets in the duchy was given by Expilly, in 1762, at 607.

The Barrois is now divided among the departments of Meuse, Moselle, Meurthe, Vosges, and Haute Marne. (Expilly, *Dictionnaire des Gaules, &c.*; *Encyclop. Méthodique*; Piganiol, *Description de la France*.)

BARROS, JOÃO DE, was born about 1496, probably near Viseu, in Portugal (but the place of his birth is uncertain), of a noble family. He was placed, while a boy, in the court of King Emmanuel as a page, and was attached to the service of the Infante Dom João, afterwards King John III. Young Barros showed an early disposition for study, and especially for the study of history. The gallant achievements of the Portuguese in the East Indies attracted his attention; and the king himself, having one day by chance seen some of his early attempts at historical composition, suggested that he might employ himself in narrating the glorious actions of his countrymen. In 1522 Barros was sent as governor to St George da Mina, on the Guinea coast. Three years after he was recalled to Lisbon, and appointed treasurer to the colonial department, and afterwards agent-general for the colonies. While he held this office he availed himself of the valuable documents to which he had access, in order to compose his great work *Asia Portugueza*, or the history of the discoveries and establishments of the Portuguese in the Indian Seas. He divided it into four *Decadas* of ten books each. The first two Decades, published in 1552-3, contain the discoveries and conquests from 1412 to 1515. The narrative begins with the discovery of Porto Santo and Madeira, in 1418-19, and contains the numerous expeditions of the Portuguese to the coasts of Senegal, Guinea, Congo, and to the Cape of Good Hope, which was at last weathered by Vasco de Gama in 1497. Then comes the full tide of Portuguese enterprise along the coasts of Mozambique, Mombaça, and on to the Malabar coast, followed by the astonishing success of Albuquerque, and the establishment of Portuguese supremacy in the Indian Seas. Barros's second Decade is entirely occupied with the history of Albuquerque's achievements till the death of that great commander in 1515. The third Decade, published in 1563, contains the events from 1516 to 1526. The fourth Decade was left by Barros in manuscript at his death, and not published for a long time after. King Philip II. of Spain, after his conquest of Portugal, purchased the MS in 1591 of Barros's daughter-in-law for 500 milreis. It was published in 1615 at Madrid with notes and additions by Q. B. Lavanha. It carries on the history of Portuguese

* Mouvant is a term applied to a fief held in feudal dependence.

India to the year 1539; but before this, Diego do Couto, historiographer of India to Philip II. and Philip III., had taken up the continuation of Barros's first three Decades, and had himself published a fourth Decade, which he followed up with a fifth, and so on till the eighth, which comes down to the year 1571. Couto had extended his work to the twelfth Decade, which came down to the year 1600, but of his last four Decades only fragments have been published: the rest remains inedited, and the MS. of one, the eleventh, is said to be lost. The best edition of Barros's work is that of 1778, from the royal press, Lisbon, 9 vols. 8vo., with the life of Barros by Manoel Severim de Faria, and a copious index. Couto's continuation, as far as the eighth Decade, was published also at the same press in eight vols. 8vo. 1778-1783, with a life of Couto. Barros is considered by the Portuguese as their best historian, both for the matter of his history and the manner of his composition. His style is much admired, and his language is considered as a model of Portuguese prose-writing; the narrative is simple and unpretending. Barros died at his estate of Alitem, near Pombal, in 1570. He is spoken of as a man of high honour and moral character both by his biographer, Manoel de Faria, above-mentioned, and by Nicolao Antonio in his *Bibliotheca Hispana*, vol. i. p. 498. He wrote also some moral dialogues and other minor works.

BARROW. [See TU'MULUS.]

BARROW, ISAAC. The materials for the personal life of Barrow may be found in the *Biographia Britannica*, with full references to authorities, particularly to Ward's *Lives of the Gresham Professors*, also in Martin's *Biographia Philosophica*, the *Biographie Universelle*, and the life by Abraham Hill, prefixed to Tillotson's edition of Barrow's works. In this part we have followed the first-mentioned work in the facts and anecdotes cited.

Isaac Barrow was the eldest son of Thomas Barrow, linen-draper to Charles I., and descended of a respectable Suffolk family. His father's brother, named also Isaac Barrow, was fellow of Peterhouse College, Cambridge, and ejected from thence by the Presbyterians about 1644. After the Restoration he was successively bishop of Man and St. Asaph, and died in 1680. Isaac Barrow, the nephew, is supposed to have been born in October, 1630, but this has been disputed on the strength of an expression of his own, reported by a friend, implying that he was born on the *29th of February*. However this may be, he was placed first at the Charter-house, and afterwards at Felstead school in Essex. In the first he gave but little promise of excellence, his principal delight being in fighting, and his general habits negligent; so that his father is reported to have wished, that if it pleased God to take any of his children, it might be Isaac. At the second school he formed a good character, and in December, 1643, he was entered at Peterhouse College, Cambridge, under his uncle above-mentioned. But by the time (February, 1645) the nephew began his residence at the university the uncle had been ejected, and the nephew accordingly removed to Trinity College. His father, in the meanwhile, had suffered losses for his adherence to the cause of Charles I., and it is said that young Barrow was indebted for his support to the well-known Dr. Hammond. He was scholar of his college in 1647; B.A. in 1648; follow in 1649; and M.A. in 1652; *ad eundem* at Oxford, 1653; B.D., 1661; D.D. (by mandate), 1670. These testimonies to his merit (the two last excepted) were the more remarkable, as he was, and always continued, a staunch Royalist.

Barrow was led to his mathematical studies instead of beginning by them. He had at first intended to practise physic, and had studied accordingly, but on his accession to a fellowship he began to study theology, as required by the statutes of the college. He found by his own wants that a divine must be a chronologist, a chronologist an astronomer, and an astronomer a geometer. To the mathematics he therefore applied himself; he had in the meanwhile, as all his writings show, closely studied the learned languages, so that on the resignation of the Greek professor he was recommended to that chair. This he did not gain, being suspected of Arminianism; and the disappointment, together with the unfavourable character of public events to his views, induced him to go abroad. He travelled (1655-1659) through France and Italy to Smyrna and Constantinople, thence again to Venice, and through Germany and Holland home. After his return he was episcopally ordained, a little before the Restoration. The neglect with which he was treated after that event, and the distich in which he celebrated it,

'Te magis optavit rediturum, Carole, nemo
Et nemo sensit te rediisse minus,'

are well known; but in 1660 he was chosen Greek professor at Cambridge, and in 1662 Gresham professor of geometry. But this last he resigned in 1664, holding its duties to be incompatible with those of the Lucasian professorship, to which he was appointed by Mr. Lucas at the institution of that chair in 1663; and this again he resigned in 1669 in favour of a pupil, a young man whom he considered as of the highest promise, aged 27, and named Isaac Newton: indeed his whole history is one of resignations of profit upon principle. He had previously been offered a good living upon condition of instructing the son of the donor; he rejected the offer as simoniacal. His uncle gave him a small living in Wales, and Dr. Seth Ward, bishop of Salisbury, made him one of the prebendaries of that cathedral. He applied the revenues of both preferments to charitable purposes, and resigned them when Charles II., in 1672, appointed him master of Trinity College. In this capacity he exerted himself to form a library, the want of which had been long felt. His letters to various individuals to induce them to subscribe to the undertaking are preserved in the edifice which they were, through his energy, and the influence of his high character, the means of erecting, and which is one of the most beautiful works of art in the university. He likewise remitted to the college several expenses which statute or custom might have compelled them to incur for the maintenance of his office. He died very young, considering his reputation, May 4, 1677, aged about 47, and was buried in Westminster Abbey: he left his manuscripts to Tillotson (afterwards archbishop), and Abraham Hill, his biographer.

On the moral and personal character of Barrow there does not seem a shade which can enable any one to deny him the highest degree of human excellence. His energy of mind is sufficiently attested by the quantity of his writings—by the successful variety of his studies—by the extraordinary opinion of him formed by his associates, when compared with the degree of interest his writings present to posterity; which is always, in our opinion, proof of a lustre cast upon writings by personal character—and by the erection of Trinity College Library above-mentioned. The quarrelsome disposition of his boyhood subsided into rational and even reasoning courage, under the discipline to which he subjected his mind. It is related of him, that being once attacked by a large dog which was kept chained all day, but let loose at night for the security of the house (in which he was a visiter, and in the garden of which he was wandering early in the morning), 'he catched him by the throat, threw him, and lay upon him, and whilst he kept him down, considered what he should do in that exigent. once he had a mind to kill him, but he quite altered this resolution, judging that it would be an unjust action, for the dog did his duty, and he himself was in fault for rambling out of his lodgings before it was light. 'At length he called out so loud that he was heard.' Being attacked by Algerines during his voyage to Smyrna, 'he betook himself to his arms, stayed upon the deck, cheerfully and vigorously fighting, till the pirate, perceiving the stout defence the ship made, sheered off and left her. I asked him why he did not go down into the hold, and leave the defence of the ship to those to whom it did belong. He replied, "It concerned no man more than myself· I would rather have lost my life than have fallen into the hands of those merciless infidels."'

The preceding quotations are from Dr. Pope, who was personally intimate with him, as cited in the *Biogr. Britann*. The following (from the same source) is the testimony of the same and other friends:—'As to his person, he was low of stature, lean, and of a pale complexion, and negligent of his dress to a fault.' Being invited to preach for Dr. Wilkins (afterwards bishop of Chester, author of the *Mathematical Magic, &c.*) in a parish church in London, his appearance, which was that of an apprentice, drove the whole of the congregation away, except a few persons, among whom was Mr. Baxter, the Non-conformist, who declared afterwards that he could have sat all day to hear him, much to the confusion of the congregation, who had complained to their rector of his substitute. An apprentice, when he came down from the pulpit, said to him, "Sir, be not dismayed, for I assure you it was a good sermon." On being asked what he thought of this person, he said, "I take him to be a very civil person, and if I could meet with him, I'd present him with a bottle of wine."' 'He was of extraordinary strength,

a thin skin, and very sensible of cold; his eyes grey, clear, and somewhat short-sighted; his hair a light brown, very fine, and curling. He was of a healthy constitution, very fond of tobacco, which he used to call his *panpharmacon*, or universal medicine, and imagined it helped to compose and regulate his thoughts. If he was guilty of any intemperance, it seemed to be in the love of fruit, being of opinion, that if it kills hundreds in autumn, it preserves thousands. He slept little, generally rising in the winter months before day.'

Dr. Barrow never married: his fellowship prevented his doing so in earlier life, and on his appointment to the mastership he had the permission rescinded, which was granted in the patent. Mr. Hill says he judged it contrary to the college statutes. Dr. Pope gives a curious reason, and says that Barrow would not expose himself to the civilities which a good match might perhaps receive. Such things do happen in our days, but Dr. Pope talks of 'sieges, batteries, and importunities which he foresaw that honourable and profitable preferment would expose him to.'

His sermons were excessively long. Preaching once in Westminster Abbey, at which time it was usual to show the curiosities of the place between the sermons to the common people at a low rate, he detained his impatient audience so long that they caused the organ to play 'till they had blowed him down.' A sermon on charity, which he delivered before the mayor and aldermen, lasted three hours and a half; and another from the text 'He that uttereth a slander is a liar,' of which he was prevailed upon to preach only the half relating to slander, leaving out that which treated on lies, lasted an hour and a half. These anecdotes illustrate his writings, as we shall see.

The works which Dr. Barrow published during his life are as follows, in which a few words of the Latin titles only are retained:—1. *Euclidis Elementa*, Cambridge, 1655, contains all the books of Euclid; translated, London, 1660. 2. *Euclidis Data*, Cambridge, 1657, afterwards appended to the preceding. 3. *Lectiones Opticæ XVIII*, London, 1669; his celebrated lectures on optics; they were revised and augmented by Newton before their appearance. 4. *Lectiones Geometricæ XII.*, London, 1670; containing his method of tangents. Afterwards, 1672 and 1674, printed with the optics. 5. Edition of Archimedes, Apollonius and Theodorus, London, 1675.

The works of Dr. Barrow, published after his death, were, 1. *Lectio, in qua*, &c., London, 1678. This is Archimedes on the sphere and cylinder, demonstrated by the *indivisibles* of Cavalerius. 2 *Mathematicæ Lectiones*, &c. These are Lucasian lectures at Cambridge, and the preface is the preliminary oration delivered by Barrow. 3 *Works*, &c., edited by Dr. Tillotson, Dean of Canterbury, London, 1685, the preface being Mr. Hill's Life of Barrow. (Last reprint 1741?) They contain his English theological works, being sermons, expositions, &c. 4. *Opuscula*, containing Latin sermons, speeches, poems, &c. There is a list of MSS. in the *Biographia Britannica*, and in Ward's *Lives of the Gresham Professors*. The *Lectiones Geometricæ* and *Mathematicæ* have been translated, the first by Stone, 1735, the second by Kirkby, 1734.

We are now to consider Dr. Barrow in two lights, as a mathematician and a theologian. And in the first of these characters, without denying him high praise, we regret that the kind of language which has frequently been used concerning him should oblige us to differ from many great authorities. Without biasing the reader by the names of these, we shall quote some extracts from different writings:—

'He may be esteemed as having shown a compass of invention equal if not superior to any of the moderns, Sir Isaac Newton only excepted.' This was written by one who knew Vieta, Wallis, Descartes, and Leibnitz. 'He has been excelled only by his successor, Newton' (in geometry.) 'The same genius that seemed to be born only to bring hidden truths to light,' &c. &c. This is quoted and agreed to by an encyclopedist of some authority in this country, who however does not state what these hidden truths were. 'Barrow, scarcely an inferior name,' that is, to Newton, is the unguarded expression of a contemporary of great note. We must dissent entirely from such an extent of praise, as having tendencies injurious to correct biography, and not allowable even as the hyperbole which writers on that subject usually employ. We shall now make some quotations from foreigners, and, as in the former case, without names. 'The *Lectiones Opticæ* is full of profound researches in the properties of curves.' 'His *Lectiones Opticæ* are worthy to figure by the side of his *Lectiones Geometricæ*. In this work Barrow, quitting the route marked out by other opticians, applied himself principally to discuss questions which had not been treated at all, or which had not been sufficiently elucidated. Among other things he treats the theory of foci, which, except in a small number of cases, were then determined by experiment. Barrow gave a complete solution of all the cases of the problem, by an elegant formula. This book as well as the *Lectiones Geometricæ* is a mine of curious and interesting propositions, to which geometry is always applied with particular elegance.'

The preceding is, in our opinion, the best description which could be given of Barrow's mathematical writings, in as few words; and we may therefore ask, how the English accounts differ so much from it? Both cannot be true. The rival (almost) of Newton has been very unjustly treated in the second set of quotations, or if not, the first set is extravagant. There are two things to be considered.

Barrow produced in a geometrical form that prelude to the differential calculus which goes by the name of the method of tangents. It was, in point of fact, what was afterwards the fundamental notion of the differentials of Leibnitz, and, in Newton's language, asserted the ultimate equality of the ratio of the differences of two ordinates and abscissæ to that of the ordinate and subtangent. It was so like the previous method of Fermat that Montucla calls it Fermat's method simplified. It was no great step from the indivisibles of Cavalerius, which Barrow knew, as we have seen; and it was as like the method of Roberval as Newton's system is to that of Leibnitz. But even granting the originality of the invention, neither Fermat nor Roberval were ever extravagantly praised for their similar discoveries; and some think that Archimedes had already deprived them all of the merit of originality. When the dispute between Newton and Leibnitz occurred, which, to say the least of it, was not very fairly managed on the English side—perhaps not on either—our countrymen appear not to have sufficiently seized the strongest point of Newton's case. Instead of asserting—which we think they might have done—that Archimedes, Fermat, Wallis, Cavalerius, Roberval, Descartes, Barrow, Leibnitz, and a host of others, had all been in possession (under various lights) of a principle which Newton's fluxions also contained, but that all had wanted the essential instrument by which Newton made that principle available, namely, the *general* binomial theorem and its consequences; they all took issue (to use a legal phrase) upon the fluxional principle, as if that had given Newton the new powers which his method possessed. And here they made of Barrow a sort of retrenched position, on which to fall back in case of defeat, affirming that if the method were not Newton's, it could not belong to Leibnitz, because Barrow had a claim of discovery prior to that of both. This gave a fictitious importance to Barrow's interesting and elegant method, which had really presented the principle in a purer geometrical form.

In the second place, popular religious writers, endeavouring to impress on their readers the argument in favour of Christianity, arising out of the greatness of the minds which have received it, have frequently, not being well acquainted with the sciences, handled their subject unskilfully, and distorted the proper proportions of different reputations. Barrow, the eminent mathematician, and the most upright and consistent of men, one of the first theologians of his day, of varied and deep knowledge upon so many subjects, has often, in this way, had the splendour of all his different characters made to shine upon the only one in which he was viewed for the time, namely, that of a mathematician. The French Encyclopædists, whose bias lay in an exactly opposite direction, have fallen into a similar error, by representing him as an 'obscure' mathematician and theologian. The truth will lie between the two, though we can offer no opinion upon the exact point where. Barrow was neither an obscure mathematician, nor second only to Newton. In this point of view his merits are certainly not small. He was profoundly versed in geometry, acquainted with all its elegancies as well as all its depth, and had a facility of application. 'Nihil quod tetigit non ornavit;' and he carried his methods, as many others have done, into theorems both curious and useful. More than this, he conquered his nature to such an extent, in pure geometry, that Montucla

justly says, 'The merit of these works is a singular brevity (*concision*) which does not destroy their clearness.' He, one of the most verbose of men, is one of the first writers who attempted, by throwing away circumlocutions and introduction of symbols, to distinguish between Euclidean rigour and unnecessary load of language. This seems to us no small merit; but where those discoveries lie which constitute this contemporary of Descartes second only to Newton, we must confess we do not know.

In the elucidation of principles Dr. Barrow is not so happy as in his application of them. The *Mathematicæ Lectiones*, a commentary on the first principles of geometry and arithmetic, is a vast cloud of words, filled with antient learning of every kind; and, though sound and logical, very difficult to understand, that is, to find out in which of the multiplied phrases the meaning lies. In an attempt to explain the doctrine of proportion according to Euclid, he seems to us to have very much increased the difficulty of his author. It is true he sometimes complains of his own prolixity, but this is a very poor compensation for so annoying a defect; and we frequently feel the force of the self-accusing terms in which he ends one of his geometrical lectures—'I think I hear you exclaim—ἄλλην δρῦν βαλάνιζε.'

The character of Barrow as a theological writer has always stood high among the English divines. His sermons, as Le Clerc observes, are rather treatises and dissertations than harangues; and he wrote and re-wrote them three or four times. They are always cited as exact and comprehensive arguments, the produce of a grasp which could collect, and of a patience which could combine, *all* that was to be said upon the subject in question. But in addition to this, Barrow was an original thinker of no mean character: learning falls into his work, but a work there would have been if he had had no learning at all. The paragraph with which we conclude is a celebrated notion of his upon the Deity, which we shall not translate, because the vigour of the conception can hardly be appreciated by any but a mathematician. Barrow, on his death-bed, looking forward to his future state, avowed that his principal idea of the happiness he should receive consisted in his notion that he should be an *intuitive geometer*, seeing those things as self-evident which, as a man, he had been obliged to spend time in acquiring by demonstration. The following passage was written by him in his manuscript of *Apollonius*, now in the library of the Royal Society, of which he was an early member.

'Ὁ Θεὸς γεωμετρεῖ. Tu autem, Domine, quantus es geometra? Quum enim hæc scientia nullos terminos habeat; cum in sempiternum novorum theorematum inventioni locus relinquatur, etiam penes humanum ingenium; tu uno hæc omnia intuitu perspecta habes, absque catena consequentiarum, absque tædio demonstrationum. Ad cætera pernè nihil facere potest intellectus noster; et tanquam Brutorum phantasia videtur non nisi incerta quædam somniare; unde in iis quot sunt homines, tot existunt ferè sententiæ. . . . . Te igitur vel ex hac re amare gaudeo, te suspicor, atque illum diem desiderio suspirus fortibus, in quo purgatâ mente et claro oculo non hæc solum omnia absque hac successiva et laboriosa imaginandi cura, verum multo plura et majora ex tuâ bonitate et immensissima sanctissima que benignitate conspicere et scire concedetur.

BARROW, a considerable river in Ireland, which has its source in King's County, a few miles west of Portarlington. The Barrow flows first to the east, past the town just mentioned, to the borders of the County Kildare at Monasterevan, and then taking a direction nearly south, it divides King's and Queen's Counties from Kildare. Continuing the same course, the river passes through the County of Carlow, and afterwards forms the line of separation between Wexford on the east, and Kilkenny and Waterford on the west, and joins the sea at Waterford Haven. At Ringwood, two miles above the town of New Ross, the Barrow receives the waters of the Nore; and their united stream is afterwards augmented by the Suir, which joins it to the east of the city of Waterford. The junction of both these streams with the Barrow takes place on its right or western bank.

The three rivers here mentioned were in former times called the Three Sisters, from the circumstance of their taking their sources from the same ridge of mountains, and after flowing through different counties, at length forming a junction at a short distance from the sea. The Barrow is supposed to have been the Birgus of Ptolemy. The mouth of these united streams forms a large and very secure port, about nine miles long, and with very good anchorage.

Considerable sums of money have at various times been spent, under the sanction of parliament, to render this river navigable. From a report made to the House of Commons by the Board of Inland Navigation in Ireland, it appears that about 42,000*l.* had been expended with this object up to March, 1811; and much has been done since that date to remove obstructions. At present the Barrow is navigable to Athy, in the County of Kildare, about sixty-five miles in a direct line from its mouth; and the communication is afterwards continued to Dublin by means of a branch of the Grand Canal. Vessels of 200 tons burden can ascend the river twenty-five miles to the town of New Ross, which by this means is enabled to carry on a valuable export trade in agricultural produce. A considerable bar, which occurs just below the junction of the Barrow and the Nore, prevents the further passage of vessels of any great burden, except at certain states of the tide.

The trade higher up is carried on by means of barges; and great quantities of corn and butter are thus annually sent down to Waterford for exportation. The increase of the downward trade on the Barrow, in consequence of the improvement of the navigation, has been very great. In 1807, the first year after the passing of the Corn Intercourse Act between Great Britain and Ireland, the total amount of shipments downwards to Waterford was 13,000 tons; and in 1828 this had increased to 31,000 tons. From the town of Carlow alone the trade, which in 1813 was only to the extent of 2000 tons, amounted in 1828 to 15,000 tons. The trade upwards has, during the same time, been nearly stationary (22,823 tons in 1807 against 23,847 in 1828). From Carlow to Dublin it has indeed fallen off from 10,000 tons in 1807 to only 6000 tons in 1828. This effect has been attributed to the higher tolls demanded in the one case than are paid in the other. From Athy to Dublin the Canal Company receives 6*s.* 9*d.* per ton, while the entire charge from Athy to Waterford is not more than 2*s.* 6*d.* per ton.

The improvement of the Barrow navigation has been made instrumental in reclaiming much land which was previously liable to injury from flooding: and it has otherwise proved of great advantage to the districts through which the river flows, by giving ready and cheap access to the favourable markets of England for the superabundant agricultural produce of the south-eastern counties of Ireland.

(Wakefield's *Statistical and Political Account of Ireland*; Campbell's *Political Survey of Great Britain*; *Reports to Parliament of the Board of Inland Navigation in Ireland*; *Report of Committee of the House of Commons on the State of the Poor in Ireland*, 1830.)

BARROW POINT, the north-western extremity of the Continent of America, is the remotest point of arctic discovery made through Behring's Straits. It is 126 miles to the north-east of Icy Cape, which was the extreme point reached by Cook; and 146 miles west of Cape Beechey, the termination of Sir John Franklin's indefatigable labours in these seas: the distance between Point Barrow and Cape Beechey still remains unexplored.

Point Barrow is a long sandy point projecting several miles; it is about one mile and a half wide at the narrowest part, and becomes broader towards the point, which was thickly covered with the yourts, or winter habitations of the Esquimaux. It presents one of those features common in these seas of the accretion of land by the pressure of the ice forcing up the sand from the shallow water and forming low swampy points interspersed with lakes. The natives were very numerous, and their behaviour left no doubt as to what would have been the fate of the hardy little crew of the Blossom's barge, had they fallen into their power.

At this point, in August, the ice was found firmly attached to the land, and in the bay beyond (as seen over the isthmus) it was one compact mass as far as the eye could reach; the shore appeared to trend in a direction nearly east. The water off the point is extremely shallow; at six or seven miles from the land there is only forty-five to forty feet over a sandy bottom; the current was found setting to the north-east, at the rate of three to four miles an hour, an argument that has been justly used (were any now wanted) in proof of the communication of the waters of the Pacific and Atlantic. From Cape Smyth, about sixteen miles to the southward, the land slopes rapidly towards Point Barrow, which lies in 71° 23½′ N. lat., 156° 21½′ W. long.—(Beechey's *Voyage to the Pacific and Behring's Straits.*)

BARROW'S STRAITS, which connect the Polar Sea with the north-west part of Baffin's Bay, were first discovered by Baffin, in 1616, who, however, supposing the land to be continuous, gave it the name of Sir James Lancaster's Sound. Various circumstances having transpired to give rise to a conjecture that a communication would here be found between the Polar Sea and Baffin's Bay, Captain Parry was sent out in 1819, with orders strictly to examine this supposed Sound, and to penetrate as far to the westward as possible, even to the Pacific. He was so far successful as to reach the Polar Seas by these Straits, to which he gave their present name, from John Barrow, Secretary of the Admiralty, a zealous promoter of north-west discovery. These Straits are about 250 miles in length, and from 30 to 45 in breadth: the northern shores are composed of a series of islands called North Devon and Cornwallis, between which is a broad channel called Wellington Channel, and to the south is another extensive inlet, called Prince Regent's Inlet. Both shores are steep and cliffy, and the water of a great depth; at the entrance of the Straits bottom was obtained in 373 fathoms, and 75 fathoms was the least water found. The icebergs in the Straits are very large. The parallel of 74 degrees north latitude runs through the Straits. This discovery has opened a wider field of operations to our whale ships, who now push far into them in quest of fish, and generally with great advantage. (Parry's *First Voyage to the Polar Regions.*)

BARRY, a small island in the parish of Barry, and considered to be in the hundred of Dinas Powys in the county of Glamorgan. It is situated in the Bristol Channel, opposite to a little village of the same name on the coast of Wales, and ten miles S.W. by S. from Cardiff. The island is said by Cressy to have taken its name from one Baruc, a hermit who resided and was buried there. The island contains about 300 acres of land, which was some years since let at the annual rent of 80*l*, with only one house annexed, which, during the summer months, is fitted up as a lodging-house for the reception of sea bathers, and will accommodate twelve people. The island maintains a few sheep and cows, and has a large rabbit warren. On the western side of the island, facing the village of Barry, there are ruins of an antient castle, and a few scattered stones mark the site of an old chapel, probably that mentioned by Leland as a place of pilgrimage. Farther to the west, the remains of another chapel are distinguishable at low water. Towards the southern part of the island, on a spot called 'Nell's Point,' is a fine well, to which great numbers of women resort on Holy Thursday, and having washed their eyes at the spring, each drops a pin into it. At low water a carriage may pass over the narrow creek which separates the island from the main land, but the road leads over a very rough bank of pebbles. Sir Richard Colt Hoare was informed that lead and calamine had been found in the island.

(Hoare's edition of Giraldus de Barri's *Itinerary of Archbishop Baldwin through Wales.*)

BARRY, JAMES. This distinguished artist was born in Cork, October 11, 1741. His father was a coasting trader, and his son James accompanied him during his early youth in several voyages across the Channel. The father, it appears, had not the slightest tincture of those endowments by which his son became distinguished, and regarded his predilection for literature and the arts with extreme aversion; nor was a trading sea port, and the circle of society into which the boy was thrown, much calculated to stimulate his latent talents. But genius finds its own opportunities, and young Barry made such rapid progress in his scholastic acquirements as to excite the attention of his superiors. His power of application was intense, and he was accustomed to sit up whole nights in succession drawing and transcribing from books. He seems even to have had a taste for hardship and privation, and this feeling, it is by no means improbable, originated in impressions made on his mind by the legends of the Romish Church; his mother was a Catholic, and he adopted her creed in preference to that of his father, who was a Protestant. During his whole life he was heard frequently to talk with enthusiasm of the sufferings and merits of the saints and martyrs; 'no cross, no crown,' was his favourite expression, and if long suffering, and the entire want of worldly success, can give a claim to the honours of martyrdom, Barry is certainly entitled to them.

At the age of two-and-twenty, Barry went to Dublin, where he exhibited, at the Society of Arts, an historical picture, which he had recently executed; the subject was drawn from a tradition relating to the first arrival of St. Patrick in Ireland. This work introduced Barry to Edmund Burke, who discerned in it such evidence of genius as induced him, shortly afterwards, to take the artist with him to England, where he gave him all the advantages of his powerful patronage, and in the ensuing year sent him to Rome. During his short residence in London, Barry, as might have been expected, caught new ardour from the contact of congenial minds, and from the animating prospects which were opening before him. He thus expresses himself to his friend Doctor Hugh: 'My hopes are grounded in a most unwearied, *intense* application; I every day centre more and more upon my art; I give myself wholly to it, and except honour and conscience, am determined to renounce everything else.'

Barry's irritable temper, although the accounts of it have been somewhat exaggerated, was no doubt a source of annoyance both to himself and others. Shortly after his arrival in Rome, he became involved in a series of disputes with the artists and *virtuosi*, which being reported to Burke, that gentleman sent him a long letter of admonition, the following extract from which is worth quoting. 'Believe me, my dear Barry, that the arms with which the ill dispositions of the world are to be combated, and the qualities by which it is to be reconciled to us, and we reconciled to it, are moderation, gentleness, a little indulgence to others, and a great deal of distrust of ourselves, which are not qualities of a mean spirit, as some may probably think them, but virtues of a great and noble kind, and such as dignify our nature as much as they contribute to our repose and fortune; for nothing can be so unworthy of a well composed soul as to pass away life in bickerings and litigations, in snarling and scuffling with every one about us.' Barry, however, did not allow these petty contentions to interfere seriously with his studies, but proceeded with indefatigable diligence to investigate the principles of the great works which surrounded him, both in ancient and modern art. His mode of study was singular. He drew from the antique by means of a patent delineator, not aiming to make academic drawings, but a sort of diagrams, in which a scale of proportions was established, to which he might at all times refer as a guide and authority. Accustomed as we are, to consider that a competent skill in drawing is only to be obtained by the habitual exercise of the eye and hand, this process seems absurd enough; nevertheless, there can be no ground for objecting to the means if the end be obtained, and no one who has seen the picture of the Victors of Olympia can deny that Barry had a thorough knowledge of the human figure, or that he was a correct and scientific draughtsman. The same praise cannot be extended to his colouring; he never seems, however, to have suspected himself of any deficiency in that quality, and says, in answer to some animadversions made on him while at Rome, 'I made some studies from Titian, and soon silenced my adversaries.'

He remained in Rome five years, and during that time was elected a member of the Clementine Academy at Bologna, on which occasion he painted and presented to that institution his picture of Philoctetes in the isle of Lemnos. This work exhibits more genius than taste. In 1770 Barry returned to England, destitute of all but art, but justly confident in his acquirements, and anxious to distinguish himself. About this time a project had been formed by Sir Joshua Reynolds and other leading artists, for decorating St. Paul's Church with Scriptural paintings; Barry was associated in the undertaking, and he selected the subject of the Jews rejecting Christ. The artists offered their works gratuitously, but this liberal proposition, for what adequate reason it is impossible to guess, was discountenanced and refused by the authorities connected with the Cathedral.

During his residence on the continent, Barry's indignation had been greatly excited by opinions prevalent there on the subject of British genius. Winckelmann and Du Bos had proved the English, by the clearest ratiocinations, to be utterly incapable of excellence in any of the higher walks of art; and Barry, attaching more importance than was due to such sweeping conclusions, undertook to give them a regular refutation. In 1775 he published an *Inquiry into the real and imaginary Obstructions to the Acquisition of the Arts in England.* In this work he traces and points out with great perspicuity the real causes, political

and others, by which the progress of the arts had been impeded in this country. Shortly afterwards Barry proposed to the Society for the Encouragement of Arts, Manufactures, and Commerce, to paint, gratuitously, a series of pictures, illustrative of the position, that the happiness of mankind is promoted in proportion to the cultivation of knowledge. His offer was accepted, and the works now decorate the great room of the Institution in the Adelphi. The series consists of six pictures, namely, Orpheus reciting his verses to the wild inhabitants of Thrace; a Grecian Harvest-home; the Victors at Olympia; the Triumph of the Thames; the Society distributing their Prizes; and Final Retribution. These subjects, dissimilar and somewhat heterogeneous as they may appear, are brought to bear on the general subject with wonderful force and unity; and we are impressed, while regarding them, with the conviction that such a work could neither have been conceived nor executed except by a mind of the very highest order. Barry's chief defect was, perhaps, that in his eagerness to grasp at ethical illustration, he was apt to forget those qualities which are essentially requisite to his own art—singleness of impression and simplicity of effect. In the picture of Final Retribution the attention is somewhat bewildered amidst the varied accumulation of characters and costumes; but if this work fails in pictorial unity, that defect is amply atoned for by the general grandeur of conception, by its interesting groups, and diversified circumstances, to which we recur again and again as to a written volume. But the picture on which Barry may rest his most indisputable claim to fame is that of the Victors at Olympia. Here the eye and the mind are satisfied alike; the picture is not only a splendid example of pictorial skill, but embodies whatever impressions have been transmitted to us by poetry or history of those celebrations. When Canova was in England, he declared that, had he known of the existence of such a work, he would, without any other motive, have made the voyage to England for the purpose of seeing it; and we doubt not, that had it been executed in the year 1500 on the walls of one of the palaces of Rome, it would now be regarded with the respect and veneration which are paid to the works of the great masters of that period.

Having completed this work, Barry must have felt conscious that he had at least secured that which had been the chief aim of his life—the reputation of a great painter. This object was obtained by no slight sacrifices; for his task had been pursued, through seven years, amidst all the hardships of poverty and privation. It would be gratifying were we able to add that he received from public admiration or sympathy a reward at all proportioned to his deserts. The result was far different. He was *permitted* by the society to whom he presented this magnificent gift to exhibit his pictures in the room which they decorate. The receipts of this exhibition scarcely amounted to 500*l*., to which, however, the society added a vote of 200*l*., and this sum comprises nearly the whole produce of his professional career. Thus the fruits of his study and the energies of his genius had been expended without giving him the chance of independence, or even a tolerable provision against the common exigencies of life. The result of his past efforts left him little confidence for future exertions; nor was the want of profit compensated by any large measure of applause; his merits as an artist were but partially admitted, while his personal peculiarities were exaggerated and made a theme of derision. It can excite no surprise that, under those circumstances, his natural irritability became exasperated, or that the powers of his mind gradually declined: this is too strongly attested by his last work, the picture of Pandora receiving the Gifts of the Gods.

Barry's disputes with the Royal Academy were another source of bitterness to him. He had been elected Professor of Painting to that body in 1782, and his altercations with the members were perpetual. He reiterated against the Academy the charge made by Sir Joshua Reynolds, that in every measure proposed by him for the general advancement of art, he was opposed and outvoted by the machinations of a mercenary cabal. We can pretend to give no opinion respecting the justice of these allegations, but the members were so annoyed at them, that they preferred against Barry a formal body of charges, and, in a general assembly, expelled him from the Academy.

Shortly after this event, the Earl of Buchan, moved perhaps by an impression that Barry had been treated unjustly, as well as by admiration of his talents, set on foot a subscription in his favour, which amounted to about 1000*l*. With this sum it was proposed to purchase him an annuity, but the close of his career was at hand, and the kind intentions of his friends were rendered unavailing. On the evening of Thursday, February 6, 1806, he was attacked, while at the ordinary where he usually dined, with a cold fit of pleuritic fever. Cordials were administered, and he was conveyed to his own house in a coach, but the key-hole had been plugged up by the mischievous boys in the neighbourhood, and it was found impossible to enter. He was then taken to the residence of his friend Mr. Bonomi, by whose prompt exertions a bed was immediately procured for him in the house of a neighbour. Here he desired to be left, and he locked himself up forty hours without medical assistance. During this time the blow was struck which timely aid might have averted. He lingered on till the 22nd of February, when he expired. His remains, after lying in state in the great room of the Society of Arts, in the Adelphi, were interred in St. Paul's Cathedral.

Among the literary works of Barry may be mentioned his six lectures delivered at the Royal Academy, and a fragment on Gothic architecture, which Burke pronounced to be 'as just as it is ingenious.' (See Barry's *Life and Works*, vol. i. p. 136.) This fragment is only eleven pages, accompanied with plates. Barry also touches on the subject elsewhere, particularly in a chapter (entitled 'the Error of the Notion about the Influence of Climate exemplified by an Analysis of the different Styles of Art') of his *Inquiry into the Real and Imaginary Obstructions*, &c. He endeavours to show 'that what is commonly called Gothic architecture is neither the invention of a northern nor eastern people, as it is generally believed; but is really the state of corruption to which this art arrived by a gradual process in the hands of the same people, the Greeks and Romans.' Vol. i. p. 279.

BARRY, MARIE JEANNE VAUBENIER, COUNTESS DU BARRY, was born at Vaucouleurs, the native place of Jeanne d'Arc, in 1744. Her father, or at least her reputed father, was an exciseman of the name of Vaubenier. An inspector of the military victualling office, M. Dumonceau, was her godfather. After her father's death, her mother went to Paris to look for employment, when M. Dumonceau placed her as a servant in a family, and the girl in a convent, which she soon after left, and obtained employment at a fashionable milliner's. She was then about fifteen. Soon after she was introduced to a disreputable house, where she became acquainted with Count Jean du Barry, a notorious fashionable rake of his day, who made her his mistress for a short time, and afterwards introduced her to Lebel, valet de chambre to Louis XV., by whom she was presented to the king. She was then remarkably handsome, and had an appearance of frankness, and a tone of familiarity, or rather vulgarity, which captivated the licentious monarch. Louis wished her to have a title, in order that she might appear at court, and Guillaume du Barry, Count Jean's brother, consented to lend himself to the wish of the king by marrying her, after which she was introduced to the court at Versailles as Countess du Barry in 1769. The Duke de Choiseul, then prime minister, having spoken freely to the king about her, lost his place in consequence. The Chancellor Maupeou, Marshal Richelieu, and other courtiers, flattered her, in order to avail themselves of her influence with the king, and it was through her that Maupeou succeeded in dismissing and exiling the parliament in 1771. The court of France, which, from the time of the Merovingian founders of the monarchy, had been, with the exception of very few reigns, remarkable for its licentiousness, became, during the Regency and the subsequent reign of Louis XV., the abode of the most barefaced profligacy. Everything was sold, everything was obtained, through the intrigues of vicious women. The accounts of those scenes which have been transmitted to us in the memoirs of several of the actors, and women too, seem almost incredible. All the courtiers, however, did not participate in the degradation, and when the Duke de Choiseul was exiled on account of Madame du Barry, many of the noblemen at Versailles went to pay their respects to the fallen minister. The Duke de Nivernois and the Duke de Noailles spoke plainly their sentiments of the favourite, even to the king. (Madame Necker, *Nouveaux Mélanges Historiques*, vol. ii. p. 39.)

When Louis XV. died in 1774, the Countess du Barry was shut up in a convent near Meaux; but some time after

Louis XVI. allowed her to come out, restored to her the residence of Luciennes, which had been built for her by the old king, and allowed her a pension. After this, Madame du Barry lived in retirement, and her conduct, as far as is known, appears to have been regular. Among the persons who visited her were several artists, whom she encouraged and assisted in their pursuits. She was almost forgotten when the Revolution broke out, but she then showed herself grateful for the treatment which she had experienced from Louis XVI. by exhibiting a lively interest for him and his family in their misfortunes; and she even repaired to England, careless of danger, in 1793, in order to sell her jewels, the produce of which she intended for the use of the queen and her children, who were then prisoners in the Temple. She had previously spread a report that she had been robbed of her diamonds. On her return from England, she was arrested in July, 1793, and in November of the same year she was brought before the revolutionary tribunal, on the charge of 'being a conspirator, and of having worn mourning in London for the death of the tyrant.' She was condemned, and was executed on the 6th of November. She cried much in going to the scaffold, and begged of the executioner to allow her a moment longer. The absurdity and injustice of the sentence made many, who had before despised her, pity her end. Many pamphlets have been published about Madame du Barry, as well as some pretended letters by her, which appeared in 1779, but which have no evidence of authenticity. (*Biographie des Contemporains; Biographie Universelle.*)

BARS or BARSH (Tekowska Stolice, Hung.), a considerable circle in the north-western part of the kingdom of Hungary, containing an area of about 1030 square miles, is bounded on the north by the circle of Thurocz, on the east by those of Honther and Zolye, or Sohl, on the south by those of Comorn and Gran, and on the west by the circle of Neutra. The northern districts are very mountainous, as they are crossed by the Klyan range of the Carpathians, which begins near Neutra, enters the circle at Mount Tribets, in the north-west, and spreads through it to the frontiers of the circle of Zolye: this range is said to afford the finest gold in Europe. South of this range are the Schemnitz and Pukantz chains, which extend to the banks of the Gran, and subside between Frauenmark, Lewenz, and Pibnick. Another branch of the same range extends in a southerly direction as far south as the mountains which divide this circle from those of Gran and Comorn. But, in general, the whole of Bars south of Lewenz is a complete level. The principal rivers which water this circle are the Gran, which bends south-westwards on entering it from the circle of Zolye, and then flows southwards into that of Gran; the Zsitva or Sitva, which enters it in the west near Verebély, and runs in a south-easterly direction until it reaches the circle of Gran, where it falls into the Danube; and the Neutra, which touches but a small portion of the western districts. Among many minor streams is the Kremnitz, which impels several works on its banks. The soil of this circle is of varied description: in the northern part it is cold and stony, and unfavourable to agricultural purposes, though it affords good pasturage, which is largely used for breeding horned cattle and sheep; but in the southern, where much grain and some wine are cultivated, it is extremely fertile. The mountains in the north are richer in metals than any other part of Hungary; the Kremnitz and Königsberg mines, which have been worked during the last seven centuries, though not so productive as in former times (the latter having been almost entirely abandoned on account of the water in them), still yield gold of a superior quality, and silver mixed with that metal; malachite, copper, and iron ore are found near Eisenbach, Königsberg, and Kremnitz. Amethysts, chalcedony, cornelian, semi-opal, jasper, agate, crystal, obsidian, syenite, porphyry, basalt, millstones, &c., are also among the mineral products of Bars. There are warm sulphuretted waters at Skleno, and chalybeate springs at Eisenbad.

The southern parts of the circle yield so much wheat and barley that they have been termed 'the Egypt of the mining regions of Hungary;' the estimated quantity of its surface available for husbandry is about 260,200 acres, of which about 128,000 are employed as arable land; but little wine is made, and even this is of inferior quality, nor do the vineyards occupy above 930 acres of ground. The woods and forests spread over an area of about 136,500 acres, of which there are large tracts in the south covered entirely with oaks. Considerable tracts of land, also, near the banks of the Gran, and from nine to fourteen miles in extent, are covered with brushwood, and afforded the inhabitants a safe refuge at the time of the Turkish inroads. Grazing is carried on actively both in the northern and southern districts, though not beyond what is requisite for the home demand. The population of Bars is about 120,000 souls, exclusive of about 1700 persons of noble birth; nearly 100,000 of them are Roman Catholics, and the remainder Protestants: those of Sclavonian origin are far more numerous than the Hungarians and Germans taken together; the Sclavonian or Slovaks inhabit 167 places, the Magyars 50, and the descendants of Saxons, who formerly migrated into this quarter, 10. Some Gipsy tribes roam through the country as tinkers, &c., but no Jew is permitted to set foot within it. The circle is divided into four districts; namely, Oszlan, in the north, Tapoltsan to the south of it, Verebély, south of Tapoltsan, and Lewenz, or Leva, eastward of the two districts last mentioned; it contains two royal free mining towns, Kremnitz, (Lat. Cremnicum; Hung. Körmöcz. Banya), in the north-east, and Königsberg, (Lat. Regiomontum, Hung. Uj-Banya), on the Gran, which has about 3900 inhabitants; 11 market-towns, 190 villages, and 28 prædia, or privileged settlements. Bars, from which this circle takes its name, is a market-town on the Gran, belonging to Prince Esterhazy, and was once a celebrated fortress, better known under its German designation, Bersenburg. The circle contributes 84,965 florins (about 8150*l.*), and the two free towns 10,568 florins (about 1013*l.*), to the expenses of the war department of the kingdom of Hungary.

BART, JEAN, was born at Dunkerque in 1650. His father was a seaman, and was killed in a naval action. Jean, yet a boy, left home and went to Holland, where he served under the celebrated Admiral de Ruyter, and became a thorough seaman. Great courage, activity, and bodily strength, gave him the superiority over most of his comrades When Louis XIV. declared war against Holland in 1672. Bart refused the offers made to retain him in the Dutch service, and returned to Dunkerque. He there entered on board a privateer, which was very successful in its cruise; and much of the success was attributed to Jean Bart. His share of the prizes having brought him a considerable sum of money, he fitted out a sloop with two guns and thirty-six men, and having met a Dutch man-of-war in the Texel, he boarded her, took her, and brought her into Dunkerque. He next joined several speculators who fitted out a ten-gun ship, and gave him the command of it. Being equally successful in this cruise, he was intrusted with the command of a small squadron of five ships, with which he did great injury to the Dutch, taking both their merchantmen and their armed vessels; and among others a thirty-six gun frigate, which, after a desperate fight, he carried into Dunkerque. His name now became known at court, and Louis XIV. sent him a gold medal and chain, with the rank of lieutenant in the royal navy. In the war against Spain, Jean Bart had the command of a frigate in the Mediterranean, and made many prizes. When the war broke out between France and England in 1689, Bart and the Chevalier de Forbin commanded two ships of war; and while they were escorting a fleet of merchantmen, they were attacked by two English frigates. After a desperate fight, the two French ships were taken and carried into Plymouth. Bart and Forbin escaped soon after by filing the bars of the window of their prison; and, with the connivance of the surgeon, who was a Frenchman, and of two cabin-boys, who waited on them, they obtained a boat, in which they crossed over the Channel to France. On their return, the king made them both captains.

In 1690 Bart took the command of a forty-gun ship, and joined the Brest fleet under Admiral de Tourville: he contributed materially to the advantage obtained by the French off Dieppe over the English and Dutch allied squadrons on the 10th July. The following year Bart obtained from the Minister of Marine the command of a squadron of small vessels, which he had recommended to be fitted out at Dunkerque, as better calculated to do injury to the enemy. He sailed out of Dunkerque, passing through the English blockading squadron, and went into the North Sea, where he made numerous prizes: he landed also on the coast of Scotland, where he plundered several villages.

After the defeat of the French at the battle of La Hogue, at which he was not present, Bart sailed from Dunkerque with three frigates, made a descent on the English coast

near Newcastle, and plundered and burnt some villages. On his return homewards he fell in with a Dutch fleet of merchantmen under convoy of several men-of-war. He made straight for the admiral's ship, according to his custom, but was repulsed; he however succeeded in taking many of the merchant-vessels. In 1694 he attacked another Dutch fleet under Rear-Admiral Vries, boarded the admiral's ship, and took her, after having mortally wounded the admiral himself with his own hand. This was one of the most desperate fights in which Bart was ever engaged. By this victory he recovered from the Dutch a fleet of 300 vessels laden with corn from the Baltic, and bound to France, which country was then suffering under a severe dearth. A medal was struck to commemorate this event, and Louis XIV. granted letters of nobility to Bart and his descendants. In 1697 Bart was commissioned to take to Poland the Prince of Conti, one of the candidates for the Polish crown, vacant by the death of John Sobieski; but the Elector of Saxony was proclaimed King of Poland before the Prince of Conti's arrival.

The peace of Ryswick, in September, 1697, having put an end to the war, Bart retired to live with his family. He died at Dunkerque in April, 1702, at the age of fifty-one. He was one of the boldest and most successful seamen that France has ever produced. He was rough in his manners and illiterate, but clever, indefatigable, and frank in his disposition. His eldest son, François, became a vice-admiral, and died in 1755. A life of Jean Bart, in French, appeared in 1780, from the English translation of which most of the above particulars are taken. (*Life of Jean Bart*, translated from the French, by the Rev. Edward Mangin, M.A., London, 1828. See also *Biographie Universelle* and *Dictionnaire Universel Historique*.)

BARTAS, GUILLAUME DE SALLUSTE, SIEUR DU, the son of a treasurer of France, was born about the year 1544, at Montfort in Armagnac, and brought up to the profession of arms, with which he afterwards united diplomacy, and obtained considerable reputation in both. Being of the reformed religion, he became gentleman of the chamber to Henry IV., during that prince's contest for the throne; served him in several missions at foreign courts, England among them, where James I. wished to retain him; and was present at the famous battle of Ivry; four months after which he died of wounds which had been unskilfully treated, or that refused to heal. Du Bartas is a striking instance of the perishable nature of reputation founded on literary fashion and a popular subject. In his own time he was accounted so great a poet, that his principal work, giving an account of 'the Week, or Seven Days of the Creation,' and founded probably on the 'Sette Giornate' of Tasso, went through thirty editions in less than six years; was translated into Latin, Italian, Spanish, German, and English; and obtained the applause of his most illustrious contemporaries, including Spenser. Yet his name is now almost proverbial for barbarism of style and bad taste, and his own countrymen treat it with contempt. They accuse him of utter want of judgment; of low, extravagant, and disgusting imagery; and pedantic compounds of words, after the fashion of the antients. What was pedantry, however, in this respect, with Du Bartas, might have helped, in greater hands, to give fire and elevation to the French language, had the idiom itself permitted it. The same compounding of words, which came to nothing in old French poetry, was so warmly received in England, through the medium of Du Bartas's translator, Sylvester, that, in conjunction with the like daring in Chapman's 'Homer,' and Sir Philip Sidney's 'Arcadia,' it avowedly helped to enrich the poetry of our native country; and to Sylvester are traced some of the most beautiful compound epithets of Milton and Fletcher. Yet so little worthy of this lucky accident in their fame was the genius either of Du Bartas or his translator, that in the latter's version, which was once almost as popular in England as the original was in France, and procured for him the epithet, after his own fashion, of 'silver-tongued Sylvester,' are to be found all the absurd and revolting defects noticed by the French critics, in spite of an occasional fine verse or thought, acknowledged by the critics of both countries. Thus, after wading through pages of low imagery, the more revolting for the subject, like the heavens reflected in a ditch, you come to a passage in which the founder of the tower of Babel is called 'that cloud-climbing prince,' or the hands are described as

'The voluntary champions of our hearts.'

Yet in the same passage, these hands are styled 'God's assessors.'

'And body's victuallers to provide it meats.'

The Divine Being is in one line called the 'Thunder-darter,' and in the next 'the Lord High Marshal;' the sun, or Phœbus, is heaven's 'coachman;' the air, the 'warehouse' of the winds; and the world, a book 'in folio.' The author's genius runs everywhere upon the mechanical, and is at the mercy of the commonest objects around him. The work is, in truth, a dull Encyclopædia of all that he knew. Dryden records with amazement his having admired Sylvester's Du Bartas when a boy, and his thinking 'inimitable Spenser a mean poet' in comparison. How, then, did it happen that Spenser himself found something to admire in Du Bartas at a riper age? Because, being a greater poet than Dryden, he had the more natural piety and imagination; was disposed to think better of the author for the sake of his subject, and was able to do more justice to what was good in him here and there. Du Bartas was an honest, estimable man, with a hearty zeal for his subject, but a dull imagination; and the consequences of this inequality of moral and intellectual qualities was, that, while a pious exaltation made him occasionally say a fine thing, the natural homeliness of his mind habitually reverted to common-place, and the good opinion which he reasonably entertained of himself in other respects, aided by the sequestered life which he led when not publicly employed, rendered him, like most solitary livers, the slave of his self-love. This seems to have been the opinion of his illustrious friend De Thou, who describes him, nevertheless, as a man who spoke very modestly of his writings. If De Thou, however, fancied that more intercourse with the wits of that time would have done him any great good, his friendship appears to have obscured his better knowledge; for not only is the pervading character of Du Bartas's poetry against him, but the wits of that time, Ronsard and others, were as far gone in pedantry as their friend. Du Bartas, with reference both to his subject and his genius, may be styled the French Blackmore. (*Biographie Universelle*; Sylvester's *Du Bartas*, &c.)

BARTER. When one commodity is exchanged directly for another, without the employment of any instrument of exchange which shall determine the value of the merchandise, the transaction is called Barter. All trade resolves itself into an exchange of commodities; but the commercial exchangers of one commodity for another effect their exchanges by a money-payment, determined by a market-value. This is a Sale. Swift, in his attack upon Wood's halfpence, which he considered as destructive of the money-standard of value, says, 'I see nothing left us but to *barter* our goods, like the wild Indians, with each other.' The general evils of such a state are obvious; and they create dishonest attempts in one exchanger to cheat the other. The North American Indians obtain a few of the comforts and luxuries of civilized life by exchanging skins for manufactured articles. The Indians meet the traders: each man divides his skins into lots, which have a relative value to each other, as that two otter skins are equal to one beaver. For one lot he wants a gun, or a looking-glass, or a blanket, or an axe. The trader has the articles to give the Indian in exchange. Twenty beaver-skins are given for a gun; the gun costs a pound in Birmingham; the beaver-skins are worth more than twenty times the amount in London. If the Indians were brought into more general contact with the exchangers of civilized life, they would regulate their exchanges by a money-standard, and would obtain a fairer value for their skins.

The term *barter* seems to have been derived from the languages of southern Europe: *baratar*, Spanish; *barattare*, Italian,—which signify to cheat as well as to barter; hence, also, our word Barratry. The want of a standard of value in all transactions of barter gives occasion to that species of overreaching which prevails from an ignorance of the real principles of trade, by which all exchangers are benefited through an exchange. The examples of barter, however, without any reference to some standard of value, become more and more uncommon, as the commercial intercourse of mankind advances. A skin of corn, or a stone vessel of corn, among some of the Indian tribes, is established as a standard of value; councils are held to determine the rate of exchange; and a beaver-skin is thus held to be worth so many more skins of corn than a blanket. This is an approach to a standard of value which almost takes the transaction out of the condition of being a barter. In the trade

carried on between Russia and China, the exchanges of merchandise are directly effected, but the comparative value of the merchandise is determined by a money-standard. This is clearly not barter. The Indian corn measure of value is something like the animal measure which formerly existed in this country, when certain values being affixed to cattle and slaves, they became an instrument of exchange, under the name of *living* money. Amongst the northern nations skins used to be a standard of value: the word *rāha*, which signifies money in the Esthonian language, has not lost its primitive signification of skins amongst the Laplanders. When nations come to use any standard of value, whether skins, as in northern Europe, or dhourra (pounded millet, *Sorghum vulgare*), as in Nubia, or shells, as in parts of India, their transactions gradually lose the character of barter. If wages are paid in articles of consumption, as in some mining districts of England, the transaction is called *truck:—troc* is the French for barter.

The exchanges of a civilized people amongst themselves, or with other countries, are principally carried on by bills of exchange: the actual money-payment in a country by no means represents the amount of its commercial transactions. If any sudden convulsion arise which interrupts the confidence upon which credit is founded, bills of exchange cease to be negotiable, and exchangers demand money-payments. The coin of a commercial country being insufficient to represent its transactions, barter would be the natural consequence if such a disastrous state of things were to continue. Thus, when Mr. Huskisson declared in 1825 that the panic of that year placed this country 'within forty-eight hours of barter,' he meant that the credit of the state would have been so reduced, that its notes would not have been received, or its coin, except for its intrinsic value as an article of exchange; and that the bills of individuals would have been in the same case. Barter, in this case, would be a backward movement towards uncivilization.

BARTER, a rule of arithmetic, introduced into books which teach rules without principles, but which, though a very necessary and usual application of arithmetic, would be too obvious a consequence to be introduced into any system of demonstrative arithmetic. It means the exchanging of goods against goods, not against money, and, as might be supposed, the rule is the following:—

'Find the value of that commodity whose quantity is given; then find what quantity of the other at the rate proposed you may have for the same money, and it will be the answer required.' (Bonnycastle's *Arithmetic*.) Thus to find how many oranges at 2 a penny should be given for 150 apples at 3 a penny, find how much money 150 apples cost at 3 a penny, namely 50 pence, and find how many oranges can be bought for 50 pence at 2 a penny, namely 100.

BARTFELD (Hungar. 'Bartpha;' Sclavon. 'Bardiow'), a free imperial town, in the county or gespanschaft ('span' designating a count) of Sáros, the most north-easterly county of Hungary. It is situated on the Töpl, not far from the frontiers of Galicia, was built at the commencement of the thirteenth century, and enjoyed considerable repute in former times, as a seat of learning, as well as for its Protestant high school and a printing establishment, from which several valuable publications proceeded in the sixteenth century. The town possesses a fine collection of old records. It is the residence of a number of noble families, whose estates lie in the vicinity. Bartfeld carries on a brisk trade in wine, hemp, and linens. The population, which consists principally of Roman Catholics, to whom all the churches belong, amounts to nearly 5000. It lies in 49° 18′ N. lat., and 21° 18′ E. long. In its immediate neighbourhood are the two celebrated chalybeate springs, called the 'Bartfeld Baths,' to which strangers, particularly the Poles, resort in very considerable numbers, at all seasons of the year: they are accounted the finest mineral waters in Hungary.

BARTH, a maritime town of Pomerania, in the Prussian government of Stralsund, at the influx of a small river of the same name into the Binnen-See, an arm of the Baltic, here called the 'Barther-Bodden.' It has manufactures of soap and tobacco, builds ships, and carries on a brisk export and import trade. There are two Lutheran churches in the town, and an asylum for ladies of noble birth, which was opened with a royal endowment in 1733. The number of its inhabitants had declined, at the close of 1831, to 3698. It is about ten miles north-west of Stralsund.

BARTHE'LEMY (SAINT) DE CHICHILLIANE, a village in the department of Isère, in France, on the right bank of the river Romanche, a stream which, descending from the Alps, falls into the Drac, a tributary of the Isère. The distance of Chichilliane from Grenoble is from twelve to fifteen miles S.E. The only claim of this village to notice arises from a singular natural phenomenon in the neighbourhood, 'the burning fountain' (*fontaine ardente*). From a spot of ground, which is about eight or nine feet across in one direction, and four to four and a half feet in the other, and bare of grass, flames are observed to rise to the height of half a foot. They are of different colours, red and blue; and they consume paper, straw, wood, in fact any substance which is presented to them; yet they will not inflame gunpowder (*poudre à tirer*) when thrown upon them. A sulphurous odour exhales from the place, and is perceptible at fifteen paces distance. The soil itself seems to be on fire, but its bulk is not diminished. When rain is long continued and heavy, the flames are extinguished; but in proportion as the earth becomes dry, they gradually rise up again. There is a spring at some distance, and when the water has been brought from this to the spot, and a pool formed, the water begins to boil fast, as though it were in a kettle over a large fire.

Malte-Brun, who briefly notices this phenomenon, as having been one of the fifteen wonders of Dauphiné, ascribes it to exhalations of hydrogen gas.

Near St. Barthélemy, in a mountain called Hyères, is a copper-mine, the metal of which contains gold and silver; there is also a mine of coal, of good quality.—(*Dictionnaire Universel de la France.*)

BARTHE'LEMY, JEAN JACQUES, was born at Cassis, near Aubagne, in Provence, 20th January, 1716. At twelve years of age he entered the College of the Fathers de l'Oratoire at Marseilles, and commenced his studies under Father Renaud, a man of considerable learning. Being intended for the ecclesiastical profession, he went next into the Seminary of the Jesuits, where he studied philosophy and theology. At the same time he applied himself to the Greek and Oriental languages, for which he early felt a great disposition. He was assisted in the study of the Arabic by a young Maronite, one of his fellow-collegians. He afterwards studied numismatics under Cary, a well-known antiquarian. In 1743 he proceeded to Paris, where he made the acquaintance of Gros de Boze, secretary to the Academy of Inscriptions and Belles Lettres, and keeper of the king's cabinet of medals. In 1745 Gros de Boze took Barthelemy as his assistant in the cabinet, and after Gros' death, Barthelemy succeeded him as keeper. Meantime Barthelemy had become known to the learned of Paris; and had written several dissertations on antient coins, and on the Phœnician, Samaritan, and Palmyrene characters. In 1754 he was commissioned by the Count d'Argenson to travel in Italy, chiefly for the purpose of collecting medals for the king's cabinet. At Rome he became acquainted with the learned Cardinals Passionei, Albani, and Spinelli, and was presented to Benedict XIV. He made also the acquaintance of Joseph Simon Assemani, of Father Jacquier, of Boscovich, Piranesi, and all the distinguished men who were living in Rome at that time. He thence went to Naples, and examined the newly-discovered antiquities of Pompeii and Herculaneum. On his return to Rome he was introduced to the Count de Stainville, then French ambassador to the papal court, and his lady, and this acquaintance decided the future destiny of Barthelemy. The Count, on his return to France, became Duke of Choiseul, and first minister of Louis XV. In his elevation he did not forget Barthelemy, for whom he had conceived a sincere esteem, but he absolutely loaded him with unasked favours. He bestowed on him several pensions, made him treasurer of St. Martin of Tours, and, lastly, secretary-general to the Swiss and Grison regiments in the French service, which last situation alone was worth 20,000 francs per annum. Barthelemy made a good use of his income; he assisted many of his less fortunate brethren in the career of science, he provided for his nephews and nieces, and himself continued to live soberly and modestly. In 1760 he published a dissertation on the celebrated mosaic of Palestrina, which he explained to be an allegorical representation of the arrival of Hadrian in Egypt. [See PALESTRINA.] The Academy of Inscriptions and Belles Lettres received him among its members, and he contributed many dissertations to the *Mémoires* of that learned body. In 1766 he published *Lettres*

sur quelques Monumens Phéniciens et sur les Alphabets qui en resultent. He next published *Entretiens sur l'Etat de la Musique Grecque vers le Quatrieme Siècle*, 8vo. Paris, 1777; *Essai d'une Paleographie Numismatique*; and *Dissertation sur une Inscription Grecque relative aux Finances des Athéniens*. But the work which has made his name popular is his *Voyage du Jeune Anacharsis en Grèce*, 4 vols 4to. Paris, 1788, and 7 vols. 8vo. 1789. He supposes a young Scythian, of the name of Anacharsis, acquainted with the language of the Greeks, to have made a journey into Greece in search of information, and to have resided many years in its principal cities, between 363 and 337 B.C. The greater part of this period corresponds with the reign of Philip of Macedonia, till the battle of Chæronea, after which Anacharsis is made finally to leave Greece and return to Scythia, where he is supposed to have compiled a narrative of his travels and observations in Greece. The work is in the form of a tour or journal of a residence of many years in Greece: it describes the supposed writer's impressions, his conversations with people of various countries and conditions, which are given sometimes in the shape of dialogues, with occasional letters from correspondents. Anacharsis visits Athens, Thebes, Corinth, Sparta, with the other towns of the Peloponnesus, the coasts of Asia Minor, the islands of the Ægean Sea, and also Thessaly, Ætolia, Acarnania, and Epirus. He introduces on the scene Epaminondas, Agesilaus, Phocion, Demosthenes, Plato, Aristotle, and all the other great men of Greece at that time, and he converses with several Greeks who had known in their youth Socrates, Alcibiades, Euripides, Aristophanes, Thucydides, &c., by which means he connects in his narrative the age of Pericles with that of Philip. He treats of the laws, polity, commerce, and finances of the Greek republics, and more especially of Athens; of their education, habits, and manners, their amusements, theatres, games, and festivals, their religious rites, of their philosophers and their various sects, the state of the sciences and arts, &c. He gives a long description, in several chapters, of the library of a wealthy and well informed Athenian, which affords him an opportunity of introducing a notice of the works known to have existed at that time and of their authors, and he also gives a chronicle of the remarkable events, domestic and foreign, which occurred during the period of Anacharsis' supposed stay in Greece.

Such is the form of this work, a form certainly attractive to the general reader, but perhaps not well calculated to give sound information in a department of learning so extensive and multifarious. The admixture of fiction with real facts is not very favourable to strict historical accuracy. With regard to the pictures of antient manners, Barthelemy says himself in his introduction, 'Such details are but faintly indicated in the antient writers, and they have occasioned numerous controversies among modern critics. I have long discussed those sketches of manners which I have introduced in my work, and I have afterwards suppressed part of them in the revisal, but perhaps I have not gone far enough in the work of suppression.' And again, 'Had I examined my strength, instead of consulting my courage, and of being led away by the attractions of the subject, I should never have undertaken this work.' This ingenuous confession ought to disarm criticism, and it renders it in fact superfluous. Barthelemy's object in writing the Anacharsis was 'to revive among the people of his age the taste for antient erudition, to vindicate it from the supercilious contempt of the philosophers of the day, and to show the utility of such studies.' (Introduction to vol. ii. of Barthelemy's *Oeuvres Diverses*.) At the end are several chronological tables of events and of illustrious characters, tables of the Greek and Roman measures, of the Athenian coins and their value, a catalogue of the authors whom he consulted for his work, and a copious general index. Besides this, whenever Barthelemy states a real fact in the course of his work, he quotes his authority at the bottom of the page. Barbié du Bocage constructed the maps and plans in the atlas which accompanies the Anacharsis. However, neither Barthelemy nor Barbié du Bocage could be very correct in their geography, for at that time many antient sites were unknown, which have been since discovered, and even now it is difficult to write with much precision on the physical character of Greece, and some of the most important localities.

The great French revolution, which found Barthelemy immersed in his favourite studies, deprived him at once of his income, of about 25,000 francs. Though he submitted to this without a murmur, the gloom of despondency seized him when he saw his best and oldest friends led to prison, and thence to the scaffold. He himself, then nearly eighty years of age, was denounced as an aristocrat, and suddenly taken to prison, where Barbié du Bocage, Chamfort, Desaulnais, Bailli, Malesherbes, &c. had preceded him. The arrest of the aged Barthelemy, however, proceeded merely from some obscure informer; the Jacobins themselves were ashamed of it, and Danton, the celebrated terrorist, procured his release the next day. Citizen Paré, the *pro tempore* Minister of the Interior, offered Barthelemy the place of chief librarian of the Royal, now National Library, which he refused. He now felt weary of life; even literary and scientific pursuits had no longer any attractions for him. Simple and single-hearted, he had judged of men after himself, and his disappointment at the sight of the dark secrets of the human heart, laid bare by the great political convulsion, was death to him. He used to say that the *revolution* ought to be called a *revelation*, meaning that it had revealed the wickedness of men. He expired in his house at Paris, in the arms of his nephew, on the 30th of April, 1795. He was buried without any ceremony, according to the custom of those times.

Barthelemy's *Oeuvres Diverses*, 2 vols. 8vo. Paris, 1798, contain a life of the author by a brother academician, and a catalogue of his works, notes taken during his journey in Italy, dissertations on the antiquities of Herculaneum and the tables of Heraclea, reflections on some Mexican paintings, and researches on the distribution of the booty in the wars of the Greeks and Romans. These last researches originated in some letters written by Mr. Stanley, a member of the English House of Commons, to Barthelemy, which elicited the investigations just referred to. This posthumous collection contains a quantity of varied and interesting erudition. Another posthumous work of Barthelemy is the *Voyage en Italie imprimé sur ses Lettres originales écrites au Comte de Caylus*, 8vo. Paris, 1802.

BARTHEZ, PAUL JOSEPH, a physician and physiologist, was born at Montpellier in 1734. At first he was inclined to the church, but his father induced him to study medicine, which he began at Montpellier in 1750, and obtained the degree of doctor in 1753. After this he went to Paris, where the character of his mind, which leant towards speculative and general views, procured for him the acquaintance of some of the most distinguished literary persons then in the metropolis. While there he wrote two essays, which were rewarded with prizes from the Academy of Inscriptions. In 1756 he was employed as physician to the army, which he soon quitted after being attacked with severe fever, and returned to Paris, where he became associated with the leading philosophers of the day as joint editor of the *Journal des Savants*, and of the *Encyclopédie Méthodique*. In 1759 he became a candidate for a professorship at Montpellier, and having proved himself superior to his competitors, was duly appointed. In his lectures he promulgated the doctrines he had announced in his early essays, which he afterwards enlarged and published, viz., *Oratio de Principio Vitali Hominis*, one vol. 4to. Montpellier, 1773; *Nova Doctrina de Functionibus Corporis Humani*, Montpellier, 1774.

In these works he endeavoured to point out, that the actions in the human body are dependent upon a vital principle, and that the functions of organized matter are to be studied in a different way from the properties of inorganic matter. These doctrines he correctly applied to vegetable as well as animal bodies, for he taught vegetable physiology as well as medicine.

Another work gave more scope for the development of his views, viz., *Nouveaux Elémens de la Science de l'Homme*, one vol. 8vo. Montpellier, of which a second edition was published by him at Paris in two vols. 8vo. 1806.

In this way he proved a valuable coadjutor to Haller, Cullen, and the other eminent physiologists of that time.

In 1774 he was made assistant-chancellor, and afterwards sole chancellor, of the University of Montpellier. In 1780 he was summoned to Paris, to assume the duties of consulting physician to the king, and first physician to the Duke of Orleans. He continued to practise his profession with increasing reputation for ten years, when the struggles of the Revolution drove him from the metropolis. He took refuge at Carcassonne, where he practised medicine gratui-

tously, and devoted himself to study, the result of which was a treatise, *Nouvelle Méchanique des Mouvements de l'Homme et des Animaux*.

Some years afterwards, the faculties of medicine having been re-established, he was appointed honorary professor at Montpellier, and in 1801 pronounced his *Discours sur le Génie d'Hippocrate*. In 1802 he was appointed physician to the Emperor Napoleon, and soon after published a treatise, *Des Maladies Goutteuses*, two vols. 8vo, which is deemed inferior to his former publications.

In 1806, after an attack of fever, he expired on the 15th of October, in the seventy second year of his age.

He left behind him two works, which were afterwards published 1. *Traité du Beau*, one vol 8vo. Paris, 1807; and, 2. *Consultations de Médecine*, two vols 8vo Paris, 1810.

(See Lordat, *Exposition de la Doctrine Médicale de M. Barthez; Biographie Universelle;* and Thomson's *Life of Cullen*, vol. i p 445)

BARTHOLINUS, ERASMUS, son of Gaspard Bartholinus (known as an author, as well as several others of his sons and grandsons), born at Roskild in Denmark, 1625; died in 1698 He was professor of geometry, and afterwards of medicine, at Copenhagen (See *Biog. Univ*) His principal work is *De Cometis*, Copenhagen, 1664-65, in which he treats of comets after the manner of Descartes. (Weidler, p 508.) He published several other works.

BARTHOLINE, THOMAS, son of Caspar, a distinguished physician and professor of Copenhagen, was born in that city 20th October, 1616. After some years study at the university of his native place, following the example of his father, he visited the most celebrated schools of Europe, at almost all of which he published some work; thus leaving at each a memorial of his assiduity and talents. First, in 1637, he went to Leyden, where he resided for three years, and where afterwards he republished his father's *Anatomiæ Institutiones*, with additions, 1641, 1 vol 8vo. Thence he went to France, and spent two years between Paris and Montpellier. From France he went to Padua, where he lived three years, and was greatly distinguished among the students. After visiting the greater part of Italy and passing over to Malta, he returned to Padua, and thence proceeded to Basle, where he took the degree of doctor of medicine, having chosen for his thesis *De Phrenitide*, 4to Basle, 1645. In the following year he returned to Copenhagen with a large collection of books, in addition to the stores of knowledge which he had acquired. In 1647 he was appointed professor of mathematics in the University of Copenhagen, which situation he exchanged the following year for the chair of anatomy During the time he held this office he published a great many works on subjects more or less connected with anatomy and medicine, as well as other subjects. Some of these treat of anatomical discoveries then or recently made, the most celebrated of which was the discovery of the *lymphatic vessels*, the merit of which he assigns to himself, though his claim is contested in favour of Rudbeck, a Swedish anatomist, who, in October and November, 1650, and the greater part of the following year, made many experiments to discover the course and termination of the *lacteals* In the course of these Rudbeck was surprised to discover some vessels filled with a transparent fluid, turgid on the side of the liver: immediately concluding that they were not lacteals but a *new set of vessels*, hitherto unknown, he called them, from the sort of fluid which they carried, *vasa serosa* Bartholine, even by his own account, was not acquainted with the lymphatic vessels till the month of December, 1651; and the testimony of Haller is in favour of Rudbeck. His first publication in which they are mentioned is entitled *Vasa Lymphatica nuper in animantibus Hafniæ inventa, et Hepatis exequiæ*, Hafniæ, 1653, 4to, Parisiis, 8vo Bartholine did not see lymphatics in man till January, 1654; yet he says, 'we envy no man's reputation; let the palm of fame be open to all; only let the honour of the invention be left to us, as we trust we deserve it.' His work is entitled *Vasa Lymphatica in homine nuper inventa*, Hafniæ, 1654.

Another important work of his is entitled *Dissertatio Anatomica de Hepate defuncto novis Bilsanorum observationibus opposita*, Hafniæ, 1661, 8vo. Up to the time of Bartholine the liver was supposed to be the sole organ of sanguification, a doctrine which he disproved in this and other works. In 1661, his health being very delicate, he resigned his professorship, and retired to the country, of which he was extremely fond. Surrounded by his books, he hoped to spend the remainder of his life in study and tranquillity, but in 1670 a fire destroyed his house, his library, and his manuscripts. After this unfortunate event he returned to Copenhagen, where the king appointed him his physician: and in addition to his salary granted him an exemption from taxes. The University of Copenhagen nominated him librarian; and afterwards, in 1675, the king appointed him a member of the grand council of Denmark.

He published many successive editions of his *Anatomia*, which was also reprinted in various countries of Europe, and it continued to be the common text-book of anatomy till the publication of Verheyen in 1693. Another valuable publication is the *Historiarum Anatomicarum Centuriæ VI*, of which there is a complete analysis in Haller's *Bibliotheca Medica*, vol ii p. 654. A valuable work of a similar kind, but consisting entirely of morbid appearances found on dissection, was unfortunately destroyed by the flames. This mode of extending our knowledge he enforced in a subsequent work, *Consilium de Anatome practica ex cadaveris morbosis adornandâ, cum Operum Auctoris hactenus Editorum Catalogo*, Hafniæ, 1674, 4to Another interesting work, though of an earlier date, is *De luce Hominorum et Brutorum*, Leidæ, 1647, 8vo. et Hafniæ, 1663, 1669, to which last edition is appended Gesner's treatise, *De raris et admirandis herbis quæ noctu lucent*. It treats of phosphorescent appearances His works altogether amount to sixty-six, one of the last of which was *De Peregrinatione Medicâ*, Hafniæ, 1674, fol, being an account of his travels, with advice to his two sons how to travel with advantage.

He died at Copenhagen, 4th December, 1680, in the sixty fifth year of his age, leaving behind him five sons and three daughters, most of whom became distinguished for their talents and learning

(See *Encyclopédie Méthodique;* Haller's *Bibliotheca Medica, et B Anatomica*)

BARTHOLINE, or BARTHOLINUS, THOMAS, son of the preceding, born in 1659, became eminent in the science of jurisprudence, in the prosecution of which, after studying at the University of Copenhagen, he proceeded to those of Leyden, Paris, Leipzig, and Oxford. Upon his return home, he was appointed professor of history and civil law; and held the offices of assessor of the consistory, secretary to the king, antiquary, and keeper of the royal archives. He died November 5th, 1690. He published: 1. *De Longobardis*, 4to 1676, 2 *De Holgero Dano*, 8vo. 1677; 3 *De Equestris Ordinis Danebrogici à Christiano V. instaurati origine*, fol; 4 *De Causis Mortis a Danis gentilibus contemptæ*, 4to, 5 *Antiquitatum Danicarum Libri tres*, 4to 1689; 6 *De Legendis Libris*, 7. *Orationes et Carmina* He left also, but unfinished, an *Ecclesiastical History of the North* It was from his work, *De Causis Mortis, &c*, that Gray translated his *Descent of Odin*. (See Moreri, *Diction* ii p 90, Chalmers's *Biogr. Dict* vol. iv, p. 74)

BARTHOLOMEW MASSACRE, THE ST., is the name by which the inhuman slaughter of the Huguenots at Paris, in the year 1572, is known. It is called the 'Bartholomew Massacre,' or simply 'the Bartholomew,' because it occurred on the 24th of August, St Bartholomew's day 'Huguenot' was the name by which the French Protestants are invariably designated by contemporary writers. There has been much discussion as to the origin of the term. According to some, it comes from a German word used in Switzerland, which signifies sworn (*eidgenoss*,) or bound by oath. Others, with Castlenau, who lived at the time it first came into use, tell us that it was an epithet of contempt, derived from a very small coin inferior even to the mailles, the smallest coin then in use in France, which had been in circulation since Hugo Capet.

As the Bartholomew massacre is one of the most contested passages in history, and as there is no historical question upon which it is more difficult to form an opinion not open to objections, it will be convenient to divide this article into two portions: 1st, a simple narrative of the transactions; 2nd., a brief summary of the opinions of historians, with reference to the probable motives of those who planned and executed it.

§ 1. The progress of the Reformation in France was different from what it was in England, where, being the act of the civil magistrate, it was conducted with more moderation: in France, on the contrary, the ruling powers were strongly opposed to it, and its progress was wholly owing to the zeal and courage of individuals. In England, there was a sort of compromise with the feelings and opinions of the

adherents of the antient faith; while in France, a Protestant meant not merely one who shook off the papal authority, but who denounced the pope as antichrist, and the ceremonies of the Romish church as the worship of Belial. In their tenets and political condition the Huguenots closely resembled the English puritans of the seventeenth century. Like them, discountenanced, and at length persecuted, by the Court, the French Huguenots became a distinct people in their native country, abhorring and abhorred by their Catholic fellow-subjects; united to each other by the closest ties of religion and a common temporal interest, and submitting solely and implicitly, in peace and in war, to the guidance of their own leaders. The wars between these irreconcileable parties were, as might be expected, frequent and bloody.

In August, 1570, a treaty of peace was concluded between the French king, Charles IX., and his Huguenot subjects. This was the third contract of the kind that had been entered into between these parties within eight years. The two first were shamefully violated as it suited the purpose of the stronger party. It was natural therefore that the Protestant leaders should feel very distrustful as to the motives of the Court with regard to the new act of pacification; and this distrust was far from being lessened by the circumstance that the overtures to peace proceeded from the Court, and that the terms of the treaty were unusually favourable to the Huguenots. The veteran Coligny [see COLIGNY], Admiral of France, however, lent all the influence of his authority, as the leader of the Huguenots, towards promoting the avowed object of the treaty. He was earnestly pressed to court; but suspicious of the queen-mother, the celebrated Catherine de' Medici, and of the party of the Duke of Guise, he refused the invitation, and retired to the strong Huguenot fortress of Rochelle. He was accompanied by the young Prince of Navarre (afterwards Henry IV.), Condé, and other chiefs of the Protestant party. This distrust, however, of the admiral, was entirely effaced before the end of the second year from the date of the treaty. Charles IX. was but twenty years of age when he ostentatiously sought to be reconciled with his Huguenot subjects. The peace was emphatically called his own peace, and he boasted that he had made it in opposition to his mother and other counsellors, saying, he was tired of civil dissensions, and convinced, from experience, of the impossibility of reducing all his subjects to the same religion. His extreme youth his impetuous and open temper—and, if we may believe Walsingham, who was the English ambassador at Paris at the time, the unsettled state of his religious opinions, inclining 'to those of the new religion,'—naturally operated in removing the distrust of Coligny. Contrary to what had happened after former treaties, pains were taken to observe the articles of pacification, and to punish those who infringed them. Charles spoke of the admiral in terms of praise and admiration: the complaints of the Huguenots were listened to with attention, and their reasonable requests granted; and their friends were in favour, while their enemies were in apparent disgrace at court. Early in 1571 Charles offered his sister in marriage to the Prince of Navarre, the acknowledged head of the Huguenot party; and though the pope refused to grant a dispensation for the marriage, and the Spanish Court and the Guises strongly opposed it, he persisted in bringing it about, threatening the papal nuncio that he would have the ceremony performed without a dispensation, if the pope continued obstinate in withholding it He enlisted the personal ambition of the admiral on his side, by offering to send an army, under his command, into Flanders, to co-operate with the Prince of Orange against the King of Spain.

Charles again, in the summer of 1571, earnestly solicited the admiral to repair to court. The letter of invitation, written with his own hand, was entrusted to Teligny, the admiral's son-in-law. It was backed by warm solicitations from Montmorency, the admiral's near relation, and the Marshal de Cossé, his intimate friend. Coligny's apprehensions at length gave way, and in September of the same year he repaired to Blois, where Charles held his court. His reception was apparently the most cordial and respectful: he was restored to all his honours and dignities, and loaded with presents. The king called him 'Father,' and in a tone of affection added, 'We have you at last, and you shall not escape us.'

This apparent favour of the king towards the admiral continued without interruption for many months. When absent from court, Charles maintained a correspondence with him by letters; and in their private conversation he at least affected to unbosom himself without reserve to his new friend; cautioned him against his mother and her Italian favourites, spoke disparagingly of his brother Anjou, and in giving the character of his marshals, freely described their faults and censured their vices. Coligny was completely won by this frank demeanour of the young king, and employed his influence to induce the other Huguenot chiefs to repair to court. Though repeatedly warned of his danger his confidence was unshaken. 'Rather,' said he, 'than renew the horrors of civil war, I would be dragged a corpse through the streets of Paris.'

The marriage of Henry of Navarre with Margaret, the king's sister, was celebrated with great pomp on Monday the 18th of August, 1572. Most of the protestant nobility and gentry, with the admiral at their head, attended on the occasion; and as their prejudices would not let them enter a church where mass was celebrated, the ceremony was performed in a temporary building near the cathedral of Notre Dame. The Tuesday, Wednesday, and Thursday were passed in all sorts of festivities. On Friday the 22nd, Coligny attended a council at the Louvre, and went afterwards with the king to the tennis-court, where Charles and the Duke of Guise played a game against two Huguenot gentlemen. As he walked slowly home, reading a paper, an arquebuss was discharged at him from the upper window of a house occupied by a dependant of the Duke of Guise. One ball shattered his hand, another lodged in his right arm. The king was still playing at tennis with the Duke of Guise when the news of this attack reached him. He threw down his racket exclaiming 'Shall I never have peace? and retired apparently dejected to his apartment. He joined the King of Navarre and the Prince of Condé in their lamentations, and promised, with threats of vengeance, to punish the guilty.

The admiral's wounds were declared on the 23rd not to be dangerous. He expressed a wish to see the king. Charles visited the wounded man, accompanied by his mother and a train of courtiers. Coligny requested to speak with the king alone, and Charles commanded his mother and brother to remain at a distance Catherine afterwards acknowledged that these were the most painful moments she ever experienced. 'Her consciousness of guilt, the interest with which Charles listened to the admiral, the crowds of armed men in constant motion through the house, their looks and whispers and gestures, all conspired to fill her with terror. Unable to remain any longer in such a situation, she interrupted the conference, by pretending that silence and repose were necessary for the recovery of the admiral. During her return in the same carriage with the king, she employed every artifice to draw from him the particulars of the conversation. He disclosed sufficient to add to her alarm.' This passage, which we have extracted from Lingard's history, is confirmed in the main by the narrative of the St Bartholomew, attributed to the Duke of Anjou, afterwards Henry III, who had a large share in its design and execution. He tells us that as the admiral began to speak earnestly, Catherine came up and drew the king away, but not till she had heard the admiral advise him not to let his mother and brother have so much of his authority.

On the first news of the admiral's wound the Huguenots repaired in crowds to his residence, and offered their services, with menacing language against the Guises the suspected assassins. A royal guard was placed to protect the house of Coligny from popular violence; and under a similar pretext of regard for his safety, the Catholics were ordered to evacuate and the Protestants to occupy the quarter in which he resided.

The attempt at assassination was not the work of the Guises: it was planned by the Duke of Anjou, the Duchess of Nemours, and the queen-mother. The father of the Duke of Guise, and first husband of the Duchess of Nemours, was assassinated by a Huguenot fanatic, who alleged that he committed the crime under the sanction of the admiral; and since that event Coligny always felt that his life was in danger from one who, whether justly or unjustly, regarded him as the murderer of his father. The attempt at assassination having failed, the conspirators met on the morning of Saturday the 23rd, in secret conference. Baffled revenge and the dread of vindictive retaliation augmented the ferocity of their counsels. On Saturday after dinner, the hour for which at that time was noon, the queen-mother was seen

to enter the king's chamber: Anjou and some lords of the Catholic party joined her there soon afterwards. According to Charles's account of this meeting, as reported by his sister Margaret, he was then suddenly informed of a treasonable conspiracy on the part of the Huguenots against himself and family; was told that the admiral and his friends were at that moment plotting his destruction, and that if he did not promptly anticipate the designs of his enemies, and if he waited till next morning, he and his family might be sacrificed. Under this impression, he states, he gave a reluctant hurried consent to the proposition of his counsellors, exclaiming, as he left the room, that he hoped not a single Huguenot would be left alive to reproach him with the deed. The plan of the massacre had been previously arranged, and its execution intrusted to the Dukes of Guise, Anjou, and Aumale, Montpensier, and Marshal Tavannes.

It wanted two hours of the appointed time: all was still at the Louvre. A short time before the signal was given, Charles, his mother, and Anjou repaired to an open balcony, and awaited the result in breathless silence. This awful suspense was broken by the report of a pistol. Charles shook with horror—his frame trembled, his resolution failed him, and cold drops stood upon his brow. But the die was cast—the bell of a neighbouring church tolled—and the work of slaughter commenced.

This was at two o'clock in the morning. Before five o'clock the admiral and his friends were murdered in cold blood, and their remains treated with brutal indignity. Revenge and hatred being thus satiated on the Huguenot chiefs, the tocsin was sounded from the parliament house, calling on the populace of Paris to join in the carnage, and protect their religion and their king against Huguenot treason. It is not necessary to enter into the details of this most perfidious butchery. 'Death to the Huguenots—treason—courage—our game is in the toils—Kill every man of them: it is the king's orders,' shouted the court leaders, as they galloped through the streets, cheering the armed citizens to the slaughter. 'Kill! kill!—bleeding is as wholesome in August as in May,' shouted the Marshal Tavannes, another of the planners of the massacre. The fury of the court was thus seconded by the long pent-up hatred of the Parisian populace; and the Huguenots were butchered in their beds, or endeavouring to escape, without any regard to age, sex, or condition. Nor was the slaughter wholly confined to the Protestants. Secret revenge and personal hatred embraced that favourable opportunity of gratification, and many Catholics fell by the hand of Catholic assassins.

Towards evening the excesses of the populace became so alarming that the king, by sound of trumpet, commanded every man to return to his house under penalty of death, excepting the officers of the guards and the civic authorities, and on the second day he issued another proclamation, declaring, under pain of death, that no person should kill or pillage another, unless duly authorised. Indeed it would seem that the massacre was more extensive and indiscriminate than its projectors had anticipated, and that it was necessary to check the disorderly fury of the populace. The slaughter, however, partially continued for three days. On the evening of the first day, Charles despatched letters to his ambassadors in foreign courts, and to all his governors and chief officers in France, bewailing the massacre that had taken place, but imputing it entirely to the private dissension between the houses of Guise and Coligny.

On the following day, the 25th, he wrote to Schomberg, his agent with the Protestant princes of Germany, that having been apprised by some of the Huguenots themselves of a conspiracy formed by the admiral and his friends to murder him, his mother, and brothers, he had been forced to sanction the counter attacks of the house of Guise, in consequence of which, the admiral, and some gentlemen of his party, had been slain; since which, the populace, exasperated by the report of the conspiracy, and indignant at the restraint imposed upon the royal family, had been guilty of violent excesses, and, to his great regret, had killed all the chiefs of the Huguenots who were at Paris.

Next day, however, Charles went in state to the parliament of Paris, and avowed himself the author of the massacre, claiming to himself the merit of having thereby given peace to his kingdom; he denounced the admiral and his adherents as traitors, and declared that he had timely defeated a conspiracy to murder the royal family.

These are the leading facts of the Bartholomew Massacre, concerning the truth of which there is no controversy. They are admitted and appealed to by historians who take the most opposite views of the motives which led to them. And this brings us to the second part of the subject.

§ 2. Two questions have arisen out of a consideration of the facts which we have just narrated:—1. Was the massacre the result of a premeditated plot, concealed with infinite cunning for months, according to some, years, that is, since the meeting at Bayonne in 1564; or was it the sudden consequence of the failure of the attack upon the life of the admiral two days before its occurrence?—2. Admitting it to have been premeditated, was Charles privy to the plot, and consequently, was the peace of 1570, the marriage of his sister, and his friendly demeanour towards the admiral and the Huguenot chiefs, one piece of the most profound treachery and dissimulation? Volumes have been written in reference to these questions; our limits confine us to a statement of their results.

We shall dispose of the first question rather summarily. The conferences at Bayonne between Catherine de Medici and the Duke of Alva were secret: if ever reduced to writing, no direct proof of the decisions in which they terminated has come down to us. There is, however, strong substantial evidence to show that they related to the most effectual means of subduing the Protestants in France and Flanders. Mutual succour was stipulated and afforded. Adriano, a contemporary historian of credit, and who is supposed to have derived the materials of his history from the journal of Cosmo, Duke of Tuscany, who died in 1574, states that Alva declared for an immediate extermination, and treated the proposition of France (to allure the Huguenot lords and princes back to the bosom of the ancient church) as faint hearted, and treason to the cause of God. Catherine represented that such an extirpation as Alva contemplated was beyond the ability of the royal power in France. They agreed as to the end, but differed as to the best means of accomplishing it; and the conference terminated with the parties merely agreeing as to the general principle of destroying the incorrigible ringleader of the heretical faction, each sovereign being at liberty to select the opportunity and modes of execution which best suited the circumstances of his own dominions. This statement is adopted by the judicious De Thou. Strada, the historian of Alva's government in Flanders, who wrote from the papers of the House of Parma, says, in reference to the hypothesis, that the Bartholomew was planned at Bayonne, that he cannot from his own knowledge either affirm or deny the accusation; but inclines to the belief that it is true (*potius inclinat animus ut credam*). It was on this occasion that Alva made use of the celebrated expression mentioned by Davila and Mathieu, and which Henry IV, then Prince of Bearn, and a stripling, who was present at the interview, told to Calignon, Chancellor of Navarre, that he would rather catch the large fish and let the small fry alone; 'one salmon,' said he, 'is worth a hundred frogs'—'Une tête de saumon valoit mieux que celles de cent grenouilles.' The subsequent conduct of Alva and the queen-mother, coupled with this indirect testimony, enable us to answer the first question thus far in the affirmative: that there existed, as far back as the conference at Bayonne, a general determination on the part of the courts of Spain and France to subdue, if not extirpate Protestantism, but no concerted plot, or settled plan of operations.

The evidence is much more conflicting with regard to the sincerity of Charles in the affair of the peace of 1570, and the events that followed it, with regard to his share in devising the Bartholomew. Against the supposition of his having been perhaps the most profound dissembler that the world has ever seen, there is, in the first place, a strong objection derived from his extreme youth, and his fickle, restless, vehement, and childishly ungovernable character. He was only twenty-four when he died, and though nominally a king from the tenth year of his age, the government was completely in the hands of his mother, and such was the ascendency of that remarkable and wicked woman over his mind, that it is hardly possible to speak with certainty as to his genuine disposition, or to affirm on what occasions he was a mere puppet, and when a free agent. His vacillation of purpose has been remarked by those who have stigmatised him as a master of the arts of simulation; while the cruelty of his sports, and the ferocious violence of his temper when under the influence of passion, have been justly referred to as an argument f-

show that an heretical enemy once in his toils would have little to hope from his humanity. 'His education,' says Mr. Allen, who has sketched his character with no friendly hand, 'had been neglected by his mother, who desired to retain the conduct of affairs, and brought him forward on those occasions only when she wished to inspire terror by his furious passions. Active, or rather restless, from temperament, he was never tranquil for an instant, but was continually occupied with some violent exercise or other; and when he had nothing better to do, he would amuse himself with shoeing a horse, or working at a forge.' But this was not the temperament of a deep dissembler. Adopting Papire Masson's character of him as the true one, that he was impatient, passionate, false, and faithless, is it possible that he should have played the part of simulator and dissimulator to such perfection, that a scrutinising and suspicious observer like Walsingham, during three years that he was English ambassador at the French court, in almost daily personal intercourse with him, never for a moment doubted his sincerity? Then, as we have seen, the admiral to the last moment placed the most undoubting confidence in the king's professions of friendship. Facts, however, are stubborn things, and we have no favourite hypothesis to support. When the marriage of the king's sister with the Prince of Navarre was under discussion, Pope Pius V. sent his nephew, the Cardinal Alexandrino, to the Court of France to prevent it. Charles took the cardinal by the hand, and said (we quote from the *Lettres d'Ossat*, referred to by Mr. Allen in his controversy with Dr. Lingard) 'I entirely agree with what you say, and am thankful to you and the pope for your advice: if I had any other means than this marriage of taking vengeance on my enemies, I would not persist in it; but I have not.' Cardinal Alexandrino was hardly gone from court, when the Queen of Navarre, the mother of Henry, arrived at Blois to conclude the marriage. Charles received her with every demonstration of affection and cordiality; boasted to her that he had treated the monk who came to break off the marriage as his impudence deserved; adding, that he 'would give his sister, not to the Prince of Navarre, but to the Huguenots, in order to remove all doubts on their minds as to the peace.' 'And again, my Aunt,' said he, 'I honour you more than the pope, and I love my sister more than I fear him. I am no Huguenot, neither am I a fool; and if Mr. Pope does not mend his manners, I will myself give away Margery in full conventicle.' (Mathieu; *Memoires de l'Etat*.)

It was on this occasion, according to De Thou, Sully, and other authorities, that Charles is said to have exultingly asked his mother—'Have I not played my part well?' 'Yes,' said she; 'but to commence is nothing, unless you go through.' 'Leave it to me,' he replied, with an oath. 'I will net them for you, every one.' Others postpone the vaunting of his dissimulation till after the massacre; and a MS. in the *Bibliotheque du Roi*, quoted by Mr. Allen, adds, 'That he complained of the hardship of being obliged to dissimulate so long.' There is one other trait of perfidy, among many told of him, which we shall quote, and leave to speak for itself.

On the evening of St. Bartholomew, and after he had given his orders for the massacre, he redoubled his kindness to the King of Navarre, and desired him to introduce some of his best officers into the Louvre, that they might be at hand in case of any disturbances from the Guises. These officers were butchered next morning in his presence.

That the peace of 1570 was, so far as Catherine de' Medici and her party was concerned, a piece of treachery, got up for the sole purpose of luring the Huguenot chiefs to their destruction, is the almost universal opinion of historians, and is admitted by those who deny that Charles had any guilty share in the transaction: De Thou alone hesitates to admit that long-meditated treachery. Opinions are more divided with respect to the closeness of the connexion between the massacre and the general design to cut off the leader (the *tête de saumon* of Alva) of the Protestant party. One great difficulty presents itself. The attempt upon the life of the admiral was made at the instigation of Catherine and her son Anjou, the great devisers of the massacre. If they really designed from the first a general massacre, why did they run the very great risk of defeating their purpose by cutting off the admiral alone without the other leaders? If the admiral had fallen at the instant by the hand of the assassin, is it not highly probable that his friends would have fled from Paris to a place of safety?—at all events, they would not have been butchered unresistingly and in cold blood. On the other hand, if the death of the admiral was the sole or chief object of the machinations of the court, why did they defer it so long or attempt it in so bungling a way? The Italian writer Davila has furnished a refined and subtle explanation of this difficulty, characteristic of the dark plotting and wily policy of his country. According to this hypothesis (which is in some degree adopted by De Thou), the plan of Catherine and her secret council was, that Coligny should be assassinated under such circumstances as to fix the guilt upon the Guises, in the hope that the Huguenots would immediately rise in arms and wreak their vengeance upon the Guises; and that object having been obtained, that they would in turn be themselves overpowered and massacred by the royal forces. By this means Catherine would extinguish at one stroke the rival houses of Guise and Chatillon, both equally obnoxious to the Court. But we agree with Mr. Allen that this hypothesis is too refined and uncertain a speculation even for Catherine, and that the difficulty is not explained by it. To our minds the difficulty can be explained only by the supposition that Charles was not only not privy to the design of the massacre, but that its plotters were doubtful of obtaining his consent. His occasional ferocity during and after the massacre, and the inconsistencies of his public declarations with respect to its origin, are by no means contradictory to this supposition, which moreover receives considerable support from what Sully tells us of his subsequent remorse. While the massacre was going on, Charles seemed like one possessed. A few days after, he said to the celebrated Ambrose Paré, his surgeon and a Huguenot, 'I know not how it is, but for the last few days I feel like one in a fever; my mind and body are both disturbed. Every moment, whether I am asleep or awake, visions of murdered corpses, covered with blood and hideous to the sight, haunt me. Oh, I wish they had spared the innocent and the imbecile!' Charles died in less than two years after the massacre, in agony mental and physical. 'In this state,' says Sully, 'the miserable day of St. Bartholomew was, without ceasing, present to his mind; and he showed by his transports of regret, and by his fears, how much he repented of it.'

The materials of this article are chiefly derived from Davila's *History of the Civil Wars*, De Thou's *History*, Sully's *Memoirs*, *Memoirs of Margaret of Valois*, and the despatches of Sir Francis Walsingham contained in Digges's *Complete Ambassador*. The writer has also carefully perused and made use of the controversial papers to which Dr. Lingard's version of the Bartholomew massacre in his *History of England* has given birth—namely, the article on that version in the 88th Number of the *Edinburgh Review*, from the pen of Mr. Allen, Lingard's *Vindication* and Allen's *Reply*—in which all the authorities and arguments on both sides are put forth with great profusion and ability. He has also consulted Mezeray, Mathieu, and Père Daniel's *Histories of France*, and Chateaubriand's extracts from the despatches of Salviati, the papal nuncio at Paris at the time of the massacre, published in the Appendix to the third volume of the *History of England* in Lardner's *Cabinet Cyclopædia*. He is also indebted to Mr. Turner's dissertation on the Bartholomew, contained in the 2nd volume of his *Modern History of England*.

BARTHOLOMEW, ST., an hospital in London, one of the most important in the class of public charities to which it belongs. Its origin is traced to Rahere, whom tradition states to have been a minstrel in the court of Henry I. This person founded, in the year 1102, a priory for black canons, adjoining to which he established an hospital for a master, eight brethren, and four sisters, who were to have the care of such sick people and pregnant women as might need the benefit of the institution. The hospital remained attached to the priory until the Dissolution, and then, in consequence of that connexion, shared its fate. Its revenues, separately from those of the priory, were then estimated at 305*l*., according to Dugdale. In the last year of his reign, Henry VIII. granted the hospital a new charter of incorporation, which described the foundation to be for the relief of one hundred poor and sick of the city of London; and he endowed it with the sum of 500 marks, upon condition that the citizens of London should contribute an equal sum. The endowment was enlarged by Edward VI.; the city and private benefactors, and its uses were limited, as at present, to the relief of the sick and maimed. In the

reign of Edward VI. the charges of the hospital for one year amounted to 836*l.*: the number of persons relieved by the hospital at that time is not known; but it appears that about 900 persons were assisted by it in the five years following the renewal of the foundation. About 1660 the hospital relieved annually 300 diseased persons, at an expense of 2000*l.* In 1729 the expense was 10,423*l.*, and the patients 5628. At present the annual number of patients varies between 10,000 and 12,000, of whom about three-fifths are out-patients. The number who can be at one time accommodated within the walls of the hospital and adjacent buildings is nearly 550. Persons injured by accidents or labouring under acute disease are admitted without delay: those who labour under any disease can gain admission by a petition signed by one of the governors.

The government of the hospital is vested in a president, treasurer, &c. The treasurer has a house within the hospital. Connected with the establishment there are three physicians and an assistant physician and as many master and assistant-surgeons, an apothecary, besides dressers and subordinate officers: there is also an hospitaller or vicar of St. Bartholomew the Less. St. Bartholomew's Hospital escaped the great fire of 1666; but the buildings having become ruinous by age, it became necessary, in 1729, to take down the greater part of them. Subscriptions were raised for the purpose, and in the following year this work was commenced, but it was not completed until 1770. It was so managed that during the progress of the work sufficient accommodation was at all times reserved for the usual number of patients. The structure, which was planned and partly executed by Gibbs, now consists of four piles of building, surrounding a court, and joined together by stone gateways. The buildings on three sides of the quadrangle contain the wards for the accommodation of the patients; the other side contains a large hall, a counting-house, and other offices. To the south wing of the hospital a neat stone building has been recently erected for the sole use of the medical establishment. In the theatre, periodical courses of lectures are delivered by distinguished practitioners to the various students who attend the hospital in order to obtain a practical knowledge of the profession. The principal gate of the hospital is in Smithfield, and is of earlier date than the rest of the buildings, having been erected in 1702. It consists of a rustic basement in which there is a large archway. A statue of Henry VIII. is placed on a pedestal in a niche over the key-stone, guarded on each side by two Corinthian pillars; above these pillars there is on each side an interrupted semi-circular pediment, on the segments of which recline two emblematic human figures, designed to represent Lameness and Disease. The whole gateway, which has very lately undergone a thorough renovation, is surmounted by a triangular pediment, the tympanum of which contains the royal arms. The grand staircase of the hospital was painted gratuitously by Hogarth: the subjects are the Good Samaritan; the Pool of Bethesda; Rahere laying the foundation; and a sick man carried on a litter, attended by monks. (Strype's *Stow's Survey of London*; Maitland's *History of London*; Malcolm's *Londinium Redivivum*; Highmore's *Public Charities of London.*)

BARTHOLOMEW, ST., one of the Antilles, in 17° 53′ N. lat., and 62° 54′ W. long., having the islands of St. Martin on the north, and St. Christopher's on the south; its distance from the former of these islands is 12 miles, and from the latter 28 miles.

St. Bartholomew is of an irregular shape. Its greatest length is from east to west, and its area is about sixty square miles. The shores are rocky and dangerous, and should not be approached without the assistance of an experienced pilot. It contains only one port, Le Carénage, which, however, is very safe and commodious; it is on the west side of the island, and near to this harbour is the town Gustavia, which is inhabited by a very mixed population of Swedes, English, French, Danes, and Americans. There are no springs on the island, and the sole dependence of the inhabitants for water is upon the rain; they have, in some dry seasons, been compelled to import water from the neighbouring islands.

The soil is good, and produces sugar, cotton, tobacco, mandioc, and indigo. Some limestone of peculiar quality is quarried and sent to different islands in the West Indies, where it is used for building purposes. There is abundance of wood in the island, including lignum-vitæ and iron-wood.

St. Bartholomew was first settled in 1648 by a colony of Frenchmen, who went for that purpose from St. Christopher's. In 1689 it was taken by the English under Admiral Thornhill, and remained in their possession until the peace of 1697, when it was restored to France. In 1746 it was again taken by the English, and was once more given up under the treaty of Aix-la-Chapelle. In 1785 the island was ceded by France to Sweden, and it has since continued subject to that power. The population of the island is about 8000; two-thirds of that number are negro slaves belonging to the planters, the greater part of whom are Frenchmen.

(Thompson's *Alcedo*; Purdy's *Columbian Navigator*; Malham's *Naval Gazetteer.*)

BARTIN, or BARTAN, river. [See PARTHE'NIUS.]

BAR'TOLI, DANIE'LE, was born at Ferrara, in 1608. At the age of fifteen he entered the Order of the Jesuits. After passing through his preliminary studies, and making his vows, he was very desirous to go to India, to join the missionaries of his order, who were then engaged in spreading Christianity through the East; but his superiors, judging that he would be more useful at home, employed him as a preacher in various parts of Italy. As he was proceeding to Palermo, to preach there during the Lent of 1646, he was shipwrecked on the island of Capri, and afterwards continued his voyage in another vessel. Although he had lost the MS. of his sermons, he contrived, by means of a few fragments which he had preserved, and with the assistance of a good memory, to go through his *Quaresimale* of about forty sermons, to the satisfaction of the audience. In 1650 he was sent for to Rome by the Father-General, and commissioned to write the history of the Order in the Italian language. He divided his subject by treating successively of the different parts of the world in which the Order had established itself. He began with Asia, *Istoria della Compagnia di Gesù, l'Asia, parte prima*, fol., Roma, 1653. In this volume he treats of the first missionaries sent by the Jesuits to the East, beginning with Francisco Xavier, who was styled the Apostle of the Indies. He describes the first success of the missions on the Malabar and Coromandel coasts, at Malacca, &c. The work may serve as a supplement to Barros's *Asia Portugueza.* Bartoli published next, *Il Giappone, seconda parte dell' Asia*, fol., Roma, 1660;—perhaps the most interesting of his works. The rapid diffusion of Christianity in Japan, and its subsequent total eradication by fire and sword, are remarkable historical events. Bartoli's narrative embraces the whole history of Christianity in Japan, from the landing of its first preacher, Xavier, in 1549, till its complete extinction, in 1637, when Japan was closed against all Europeans, with the exception of the Dutch, who were, and are still, allowed to trade at the harbour of Nangasaki. The book contains many interesting particulars; the writer is honest and conscientious, though he may in some instances appear credulous on the subject of supernatural agency; he drew his facts from original and recent documents, and with great good sense shows the faults which the Christians committed, and which contributed to their ruin. He gives a very good sketch of the character and habits of the Japanese.

Bartoli's next publication was *La Cina, terza parte dell' Asia*, fol., Roma, 1663. This work, which embraces also the missions to Cochin China and Tonkin, concludes Bartoli's account of Asia—an account replete with interest, for these may be looked upon as the heroic times of the Order of Jesuits. He next published *L' Italia, prima parte dell' Europa*, fol., Roma, 1673;—and *Dell' Inghilterra, parte dell' Europa*, fol., Roma, 1667. This is a history of the English Catholics, principally under Elizabeth and James I.: the author passes rapidly over the reign of Mary, 'who,' he says, 'was obliged to use the sword, in order to cut off the mortified limbs of the nation, for fear they should infect the rest.' But in the body of his work, and in the deliberate investigation of facts, Bartoli shows as much fairness as could be expected from a man of his order, and of the times in which he wrote. Bartoli wrote also the life of Ignatius de Loyola, the founder of the Jesuits, *Vita e Istituto di S. Ignazio*, fol., Roma, 1689. There is, however, another and older life of Ignatius, by Father Ribadeneira, a countryman and contemporary of Loyola. Bartoli wrote likewise the lives of the Generals Caraffa and Borgia, and other distinguished members of his order.

Bartoli's works contain a vast quantity of materials for

the history of the first century of the Society of Jesuits. He wrote also several books of morality: *La Ricreazione del Savio*; Milano, 1660; being considerations on the wonders of nature, from which he derives moral and religious arguments for the conduct of a wise man. *Della Geografia trasportata al Morale*; Roma, 1664; a work on the same principle as the preceding, in which the author indulges very freely in allegory and other figures, according to the taste of the Italian writers of the seventeenth century, which fault, however, he has avoided in his historical works. *L'Uomo di Lettere difeso ed emendato*, in which he encourages studious men who labour under poverty and neglect; shows the advantages of learning over ignorance, condemns plagiarism, and gives much excellent advice to men of letters—on their conduct, their pursuits, and their style. This work has been translated into English, by Thomas Salisbury, 8vo., London, 1668. It also went through many editions in Italian.

Bartoli wrote treatises on several physical phenomena—on sound and hearing, *Del Suono, de' Tremori armonici, e dell' Udito*, 4to, Rome, 1679; on ice, *Del Ghiaccio, e della Coagulazione*, 4to., Rome, 1681; on the depression and expansion of quicksilver in tubes, *La Tensione e la Pressione disputanti qual di loro sostenga l' Argento Vivo ne' Cannelli dopo fattone il vuoto*, 12mo., Venezia, 1679.

Bartoli also wrote several works on the Italian language: *Il Torto e il Diritto del non si può*, 12mo., Roma, 1655, a work much esteemed; and *Dell' Ortografia Italiana*, ibid. 1670. He contributed also to Mambelli's work called *Cinonio, Osservazioni sulla Lingua Italiana*, one of the best works on Italian grammar. An edition of Bartoli's minor works, including some of his sermons, was published at Venice, 3 vols. 4to., 1716-7. His great historical work on Asia, Japan, and China, after having become very scarce, and having fallen into unmerited oblivion, has been of late years strongly praised and recommended by Italian philologists, as one of the best specimens of Italian prose. In consequence of this, a new edition of Bartoli's works has been lately brought out in Italy.

Bartoli was appointed Rector of the Gregorian or Roman College, in 1671. He died at Rome, in January, 1685, aged seventy-seven years. (Mazzuchelli, *Scrittori d'Italia*, and Bartoli's works above quoted.)

BARTOLOZZI, FRANCESCO. This distinguished engraver was born in Florence in 1730, though some accounts give the date earlier. He received his first instructions in drawing under Gaetano Biagio and Ignazio Hugford, in the Florentine academy. Here his acquaintance commenced with Giovanni Cipriani, with whom his name became afterwards intimately associated by their joint productions in art. Bartolozzi commenced engraving under Joseph Wagner, of Venice, and when the term of his engagement with that master had expired, he married a Venetian lady, and went to Rome, whither he had been invited by Cardinal Bottari. Here he established his reputation by his fine plates from the life of St. Nilus, and by a series of portraits for a new edition of Vasari. Having completed these works he returned to Venice, where he was engaged by Mr. Dalton, librarian to George III., to engrave a set of drawings by Guercino, which having accomplished, that gentleman invited him to England to continue engraving for him on a stipend of 300*l*. per annum: this offer Bartolozzi accepted, and the series of plates from Guercino were completed in this country. Some of the earliest performances by which Bartolozzi distinguished himself in England were designs for tickets for the select performances at the Opera House; and he evinced so much talent in these limited subjects, and obtained such popularity, as to excite the jealousy of the celebrated engraver Strange, who pronounced him incapable of executing anything else. This illiberal remark brought on its own refutation. Bartolozzi immediately commenced his engraving of Clytie, after Annibale Carracci, and that of the Virgin and Child, after Carlo Dolce. These plates are well-known; they are in the highest degree brilliant and spirited, and would alone have been sufficient to establish the name of Bartolozzi as an engraver of the very highest order. A style of dotted engraving printed in red ink was introduced about this time, a bad and meretricious practice, the success of which was in great measure attributed to the example of Bartolozzi; but this slight deviation from sound taste was amply atoned for by the correctness and beauty of his general style. His correct drawing, and especially the accurate finishing of the extremities of his figures, were much admired by Sir Joshua Reynolds, and recommended by him to the imitation of the students of the English school, which at that time was extremely deficient in those points. Bartolozzi engraved a prodigious number of the paintings and drawings of Cipriani, who had likewise settled in England: the styles of the painter and engraver harmonize admirably; grace, elegance, and suavity, are the characteristics of each, and their works for a considerable time held almost unrivalled possession of the public favour. The prevailing fault in the plates from Cipriani is a certain ultra-refinement, an excess of softness and finishing incompatible with vigorous style; but this objection must lie chiefly against the painter. Bartolozzi showed that when engaged on the works of more efficient masters he could transmit them to the copper with adequate force and effect. Examples of this will be seen in the print of Clytie above-mentioned, and in those of Prometheus devoured by the vulture, after Michael Angelo; the Adultress before Christ, after Agostino Carracci; Rebecca hiding the idols of her father, after Pietro da Cortona; St. Luke painting the portrait of the Virgin, after Cantarini; King John ratifying Magna Charta, after Mortimer; Cornelia, mother of the Gracchi, after West; the Death of Lord Chatham, after Copley. Various other examples might be adduced. One of Bartolozzi's earliest patrons was Alderman Boydell, for whose Shakspeare Gallery he engraved a number of fine plates. Among his minor works, his etchings in imitation of the great masters, and of the Marlborough gems, are proofs of his versatile and exquisite taste.

In the year 1802 Bartolozzi received an invitation from the Prince Regent of Portugal to settle at Lisbon, as superintendent of a school of engravers, with a salary of 100*l*. per annum, to which was annexed a handsome residence and the profits of the engravings. It is asserted, but on no very specific authority, that an offer of 400*l*. per annum was made him as an inducement to him to remain in England, but that he refused the proposal, except on condition that government would explain the affair to the Prince Regent of Portugal. This interference was considered improper, and Bartolozzi left England in his 75th year, and was received at Lisbon with all the respect due to his distinguished talents. He died in that capital in his 88th year.

Few engravers have attained a higher reputation than Bartolozzi, and he had the good fortune to be fully appreciated during his lifetime. Considering the immense number of his works, and their great and immediate popularity, it seems extraordinary that he should have failed in acquiring independence; but his failure, however, was so complete, that it is said that he was compelled to accept his Portuguese appointment in great measure by his pecuniary circumstances. His private character was in the highest degree amiable, and it may be mentioned, among many other instances of his kind and generous disposition, that he finished gratuitously a plate which had been commenced by Ryland, having been requested to do so by that unhappy man when under sentence of death for forgery. Several of Bartolozzi's pupils rose to eminence; among them, Cheesman, Sherwin, Tomkins, and the two Vendramini. (Arnold's *Annals of the Arts*.)

BARTON, BENJAMIN SMITH, was born in the year 1766 at Lancaster, in Pennsylvania. His father was a respectable episcopal clergyman, who divided his time between the duties of his sacred office and the pursuit of natural history, especially of mineralogy; but he unfortunately died when the subject of this notice was only fourteen years old, leaving his children so ill provided for, that the early part of his son Benjamin's life was an incessant struggle with want and poverty. His mind, however, was too elastic, and his resolution to surmount the difficulties and the enemies who it is said surrounded him too fixed, either to be crushed by the privations of indigence, or to be discouraged by the oppression of those who ought to have been the orphan's friend. It is probable that the unfortunate position in which he thus found himself, joined with a temper naturally 'irritable and even choleric,' brought on the serious bodily afflictions with which he was visited during all the remainder of his life. After gaining the essential parts of a learned education under Dr. Andrews of Philadelphia, Mr. Barton prosecuted his medical studies in the university of that city, where he distinguished himself so much by his acquirements in science as to secure the friendship of his uncle, Dr. Rittenhouse, who proved

ever after his father and supporter. In the words of his *protégé*, written at a late period of the life of the latter, 'He laid the foundation of what little prosperity in life I now or may in future enjoy; and if it shall ever be my fortune, either by my labours or my zeal, to advance the progress of science, or to reflect any honour upon my country, I should be the most ungrateful of men if I did not acknowledge and wish it to be known that it was David Rittenhouse who enabled me to be useful.' In 1785 Mr Barton accompanied his uncle and the other American commissioners in fixing the western boundary of Philadelphia. On this occasion he enjoyed peculiarly favourable opportunities for studying the manners of the American Indians, their history, and their traditional medicines, and thus he was led into some curious investigations concerning such subjects, by which he gained considerable reputation. When about twenty one, Mr Barton embarked for Great Britain with a view to completing his medical education at Edinburgh, where he remained about two years; owing, however, to some dissatisfaction with two of the professors, who he fancied did not show him sufficient attention, he went to Gottingen to graduate, although he had distinguished himself at Edinburgh by gaining the Harveian prize of the Royal Medical Society for his dissertation on the medical qualities of the henbane. Upon his return from Europe Dr Barton established himself in Philadelphia as a physician, and soon found some practice. His reputation for attainments in natural science introduced him so speedily into notice, that when only twenty four he was appointed professor of natural history and botany in the college of Philadelphia, and thus was the earliest teacher of natural science in the transatlantic world, an office which he continued to hold zealously and successfully for six and twenty years, dispersing annually through the different sections of the United States a number of well grounded naturalists, who must have contributed most essentially by their taste and pursuits to foster among the Americans that love for the pleasures of science from which they are now deriving their reputation among foreign nations. In 1802 Dr Barton was elected vice president of the American Philosophical Society; when thirty he became professor of materia medica; upon the death of Dr Rush he succeeded him in the chair of the practice of medicine, which he held till his death; and in the year 1809 he became president of the Philadelphia Medical Society, the highest mark of respect for professional talent which it was in the power of his fellow citizens to bestow. In a short time, however, his incessant labours and the heavy duties of his professional avocations, which, as his biographer observes, had been performed with a fatal degree of faithfulness, produced their usual effects; his constitution gradually wore down beneath the perpetual struggle between severe bodily infirmity and an ever restless mind, till at last, after visiting Europe in a vain attempt to restore his shattered powers, he died in December 1815, having gone through a career alike honourable to himself and useful to his country. The writings of Dr Barton consist chiefly of papers upon various subjects relating to the natural history and antiquities of North America, and an elementary work on botany, which passed through two American editions. They all evince an ardent zeal for his favourite pursuits and a scrupulous exactness in the statements he put forth; and they must have contributed in a most powerful degree to the advancement of North American science. Among other things we may mention that he was the first person to notice the curious power of camphor when steeped in water to revive faded flowers, showing it to be a vegetable stimulant of peculiar energy. 'I have learned that to distrust is nervus sapientiæ,' said our celebrated countryman John Ray; this most important principle was acted upon by Dr Barton in a manner which showed the soundness of his mind and the goodness of his judgment. 'Credulity, he used to say, 'is the most injurious feature in the character of the naturalist as well as of the historian. Its influence in one individual is often felt and propagated through many ages. Unfortunately, too, it has been the sin of naturalists, or those who have touched on questions relative to natural history.' When his circumstances became easy, Dr Barton did not forget the value of assistance to those labourers in science to whom fortune had been unpropitious: among his many acts of liberality ought to be mentioned two in particular which have been attended with permanently valuable results. At his private charge the late Frederick Pursh was sent to the Alleghany Mountains and the western territory of the Southern States for the sake of exploring their vegetable productions, on which occasion he acquired the most valuable part of the materials from which he subsequently prepared his American *Flora*. At a later period Dr Barton enabled Mr Nuttall, in 1810, to visit the northern and north western parts of the United States and the adjoining British territories with a similar object in view: how large an accession of discovery resulted from this also is well known from the works both of Pursh and of Nuttall himself. These two botanists agreed to name one of the finest of their discoveries *Bartonia*, in honour of their patron; and it would have been more to the credit of Mr Nuttall if he had imitated the example of Pursh by gratefully acknowledging his obligations to his benefactor in the preface to his work, instead of making his memory the subject of a contemptible squabble.

We are indebted for the principal part of the above information to a *Biographical Sketch of Professor Barton* by his nephew, Dr William P C Barton, himself a botanist of considerable reputation. He is the author of a useful *Compendium of the Flora of Philadelphia*, of two volumes quarto on the *Vegetable Materia Medica of the United States*, a work of great value, and of a *Flora of North America*, in three volumes, 4to, published between 1821 and 1824. The botanical plates in these two last works are by far the best that have yet appeared in the continent of America, and will bear comparison with those of the most celebrated European botanists.*

BARTON, ELIZABETH, the 'holy maid of Kent.' Respecting the early life of this woman we possess no information. She first becomes known to us in 1525, when, in the humble capacity of servant at an inn at Aldington in Kent, she began to acquire a local reputation for sanctity and miraculous endowments. She was subject to fits of an epileptical character, and, in the paroxysms of her disorder, vented her feelings in incoherent phrases and exclamations, which one Richard Master, parson of the said parish, took advantage of to make people believe that she was an instrument of divine revelation. This opinion, which soon began to gain ground, was favoured by those feelings of superstitious reverence with which the ignorant often regard persons of a diseased intellect. Master and Dr Bocking, a monk of Canterbury, took her under their direction, and instructed her in the tricks she should play. At first it is probable that she was simply their instrument, but she soon appears to have become a kind of accomplice, though we cannot perhaps fairly consider her, in any part of her career, as of perfectly sound mind. A successful prediction lent its aid to the general delusion. A child of the master of the inn happened to be ill, when Elizabeth was attacked by one of her fits. On recovering, she inquired whether the child was dead? She was told that it was still living. 'It will not live, I announce to you; its death has been revealed to me in a vision,' was the answer. The child died, and Elizabeth was immediately regarded as one favoured by Heaven with the gift of prophecy. She soon after entered the convent of St Sepulchre's at Canterbury, and became a nun.

In this new situation her ecstasies and revelations were multiplied, and she became generally known by the appellation of the 'holy maid of Kent.' Several persons of distinction, 'nobles as well as spiritual persons,' to quote from the statute, believed in her divine mission. Bishop Fisher, the most honest prelate of his time, and Archbishop Warham, a learned and amiable man, countenanced her pretensions; and, above all, the strong intellect and upright heart of Sir Thomas More did not secure him against the errors of his age. (See Cromwell's letter to Fisher in the Appendix to Burnet. Fisher's speech in defence of himself in the affair of the Maid of Kent is quoted at length in the *Parliamentary History*, vol i. p. 529, from Collier.) In his letter to Cromwell, More tells us that the king himself first drew his attention to the trances and ravings of the 'silly nun,' having called upon him to report upon a paper-roll which Archbishop Warham had sent to Henry of what she had seen in her visions. 'I told him,' says More, 'that in good faith I found nothing in these words that I could anything regard or esteem, for seeing that some part fell in rhythm, and that, God wots, full rude also, for any reason, God wots, that I saw therein, a right simple woman might in my mind speak it of her own wit well enough;' but added,

as it was reported that a miracle was wrought in her, he durst not, and would not be bold in judging the matter This was in the early part of her career During the subsequent seven or eight years, More states that he continually heard 'much talking about her, although no miracle or revelation, and was informed, moreover, that she had had a personal interview with both Cardinal Wolsey and the king To the cardinal she said that in a vision she saw the Almighty deliver into his hands three swords, one of which signified the authority which as legate he exercised over the clergy, the second, his rule as chancellor over the temporalities and the third, his authority in the great matter of the king's marriage and her d Him at the same time declare that unless Wolsey employed these swords properly it should be laid sorely to his charge The prediction to Henry was of a more dangerous character,—that if he were to repudiate Catherine he would die in the course of seven months, and be succeeded on the throne by his daughter Mary

In the course of the year 1533 Sir Thomas More had an interview with the holy nun at the chapel of the nuns at Sion The result was that he thought heaven was working 'some good and great things by her She told him among other strange things which threw light on the state of her understanding 'that of late the devil in the likeness of a bird was flying and flutt ring about her in a chamber and suffered himself to be taken and being in hands suddenly changed in their sight that were present into such a strange ugly fashioned bird that they were all afraid and threw him out of a window More at a subsequent time shortly before his execution changed his tone, and declared her in his letter to Cromwell, to be a lewd nun and a hypocrite

Had this poor creature confined her prophecies to the common occurrences of life or event the current topics of religious controversy, it is more than probable that she would have been permitted to live in peace but led by her zeal or more probably worked upon by others she boldly prophesied against evil doers in high places and in reference to the divorce from Catherine and marriage of the king with Anne Boleyn declared that he had known by revelation from heaven that God was highly displeased with our said sovereign lord, and that if he proceeded in the said divorce and separation and married again he should no longer be king of this realm, and that in the estimation of Almighty God he should not be king one hour and that he should die a villain's death She was at the time so popular, and so extensively patronized by many of the clergy and such pains were taken on their part to diffuse her sentiments respecting the divorce, that the government at length proceeded to take active measures against her and her adherents Accordingly in November 1533 the nun with five priests and three lay gentlemen her accomplices were brought before the Star Chamber and sentenced to do public penance as impostors at St Paul's Cross It is stated by the more zealous anti Romish writers that the nun did confess herself to be an impostor, and that she was tempted to claim inspiration at the instigation of the devil but it is much more probable that this confession was obtained from her with the hope of saving her life than that a simple woman should have continued to carry on, for many years, a system of complicated mental and physical imposture Lingard admits that she confessed her guilt, but threw the burden of her offence on her companions Burnet goes so far as to denounce the whole affair as an imposture from the beginning maintaining that the nun was taught to counterfeit the very convulsions and trances of disease, and this, too, while he admits that 'she was of a sick and distempered brain,' and subject to 'hysterical fits

But the nun's confession whatever were its motives availed her nothing From the pillory she and her companions were led back to prison, where they lay till the following January, when they were attainted of high treason It was thought that as the imposture had been doubly proved—by the alleged confession, and by the fact that the king had outlived the period assigned him by the prophetess—that no additional punishment would be inflicted, but the king was not of a temper to be so easily satisfied On the 21st April, 1534, the nun was beheaded at Tyburn, together with the five priests

There are some small discrepancies in the accounts of this woman's confession and of the execution of herself and her accomplices The credit and countenance which Fisher, Bishop of Rochester, and Sir Thomas More had given to her, were among the articles of accusation against these two persons (See Strype, vol. i)

BARTON-UPON-HUMBER is a market-town of the county of Lincoln, in the wapentake of Yarborough. It is situated on the south side of the Humber, 155 miles north from London, and 33 north by east from Lincoln The lordship of Barton contains 6710 acres, and the manorial estates belong to the crown Barton is a place of considerable antiquity It was once surrounded by a rampart and fosse, the remains of which are still visible in what are called 'the castle dykes, and was probably otherwise fortified against the aggressions of the Danes and Saxons, who often wasted the country on both sides the river At the time of the Norman Conquest Barton was a place of some importance, and one of the principal ports of the Humber It was then a corporate town, governed by a mayor and aldermen, and, until the foundation of Kingston upon Hull by Edward I, had a considerable share of trade which afterwards gradually declined When Edward III required the sea ports to contribute ships and men for his expedition against France, Barton contributed five ships and ninety one men but at that time many of our present sea ports on the eastern coast were not even mentioned It is now principally noted for being the place where the northern road passes the Humber to Hull and the improvements which have been made in the ferry have rendered it a great thoroughfare Steam packets cross and re cross the river every morning and evening for passengers the distance being about six miles and a half to the opposite bank Although there is properly only one parish in Barton it contains two large churches the respective districts of which are popularly considered as parishes St Peter's Church appears to have been built about the time of the Conquest The tower which is the oldest part of the structure is regarded as an object of considerable architectural interest The front of its lower compartment (a representation in a plate of the *Gentleman's Magazine* for 1816) presents two rows of pillars the lower row supporting round and the higher pointed arches The windows in the lower and uppermost compartments of the tower have round arches but in the blind windows of the middle compartment the arches are also pointed The living is a discharged vicarage in the archdeaconry and diocese of Lincoln valued in the king's books at 19l 4s 8d and stated to be of the actual value of 250l per annum The church of St Mary is a very handsome structure of the fourteenth century said to have been erected by the merchants of Barton as a chapel of ease to the older church The churches are kept in repair by their separate districts and service is performed alternately at each The town consists of several well built streets, with several good inns but besides the churches it contains no public building that requires notice A court leet is held half yearly at Barton for the cognizance of offences committed in the town and a court baron every three weeks for the recovery of small debts A considerable trade in corn is carried on in the town and many of the inhabitants are employed in the manufacture of bricks tiles, Paris whiting, ropes and sacking The town has a well supplied weekly market on Mondays and another for fat cattle once a fortnight The annual fair is held on the Thursday after Trinity Sunday Barton contained 770 houses in 1831 with a population of 3233 persons 1689 of whom were females (Howlett's *Selection of Views in the County of Lincoln Historical and Descriptive Account of Lincolnshire*, 1836)

BARUCH ברוך means, literally, *blessed*, and corresponds to the names Macarius (Μακάριος) in Greek and Benedictus in Latin Hence Baruch Spinoza called himself Benedictus in the title of his Latin works

Among the various individuals called by the name of Baruch, none is so generally known as Baruch the son of Neriah, the son of Maaseiah This Baruch was the scribe and assistant of the prophet Jeremiah During the reigns of Josiah, Jehoiakim, Jehoiachin, and Zedekiah, kings of Judah, Jeremiah warned the princes and people of the land of Judah denouncing their sins, exhorting them to repentance, and foretelling the approaching calamitous judgments of the Lord

In the fourth year of the reign of Jehoiakim, about B C 607, while Jeremiah was closely confined, he received a divine command to cause all the prophecies which he had uttered to be written in a roll. He accordingly summoned Baruch, the scribe, who wrote from the mouth of Jeremiah

all the words of his former denunciations. Baruch received from Jeremiah the further command to take the roll and read its contents in both the interior and the entrance of the temple. When the purport of the message contained in the roll was declared to the princes, they summoned Baruch into their presence, and caused him to read the roll before them. The awful tidings so deeply impressed the princes, that they endeavoured to communicate them to the king, advising at the same time both Jeremiah and Baruch to seek safety in concealment. After having heard the commencement of the roll, Jehoiakim cut it in pieces, and cast it into the fire, which was kindled on the hearth of the winter-house in which he sat. Jehoiakim commanded his servants to apprehend both the prophet and the scribe; but they were already concealed (B C. 606).

After the destruction of Jerusalem, when Nebuchadnezzar led the Jews captive to Babylon, Baruch and his master Jeremiah obtained permission to remain in Palestine, and to choose their place of residence; but both were afterwards carried into Egypt, by Jochanan Ben Kareach, B.C. 588. (Comp. Jer. xxxii. 12-16; xxxvi. 4, 17, 27, 32; xliii. 3-6; xlv. 1, 2. *Josephi Antiquitates*, x. 9, 1.)

From some of these passages we learn that Baruch was present at the destruction of Jerusalem. Concerning the close of Baruch's life there exists a diversity of opinion. According to one tradition, Baruch died in Egypt; another asserts that he went from Egypt to Babylon, and died there twelve years after the destruction of Jerusalem, leaving a celebrated disciple in the person of Ezra, the scribe, and subsequent leader of the Jews.

The most antient copies of the book of Baruch still extant are written in Greek; but on account of supposed Hebraisms in the style, some learned men are of opinion that it was originally written in Hebrew. It has been published, with the rest of the Apocrypha, in a Hebrew translation, by Seckel Isaac Fraenkel; Leipzig, 1830.

The book commences with an historical introduction, in which it is stated that Baruch read this writing to the exiles in Babylon, in the fifth year, on the seventh of the month, at the time when the Chaldeans burned Jerusalem. We read (in 2 Kings xxv. 8 and 9) that, 'in the fifth month, on the seventh day of the month, which is the nineteenth year of Nebuchadnezzar, King of Babylon, came Nebuzar-adan, captain of the guard, a servant of the King of Babylon, unto Jerusalem; and he burned the house of the Lord, and the king's house, and all the houses of Jerusalem burned he with fire.' Since it was generally known that Baruch was in Jerusalem during the siege of that city, and that he shortly afterwards accompanied Jeremiah into Egypt, it could not be supposed that he read his composition at Babylon on the very day of the destruction of Jerusalem. We therefore conjecture that the expressions in the commencement of the book of Baruch imply that it was read at Babylon on some anniversary of the destruction of Jerusalem. This anniversary occurred, perhaps, many years after the overthrow took place. The latter supposition would obviate the objections raised by the comparison of Baruch (i. 7), in which Joachim is styled the high-priest, with Kings (2. xxv. 18), in which we find that at the time of the destruction Seraiah was chief priest.

The introduction states that 'Baruch did read the words of this book in the hearing of Jechonias, King of Judah, and in the ears of all the people, the elders, and the nobles that came to hear the book; whereupon they wept, fasted, prayed, and made a collection of money, which they sent to Jerusalem, to Joachim, the high-priest, the son of Chelcias, the son of Shallum; and to the priests, and to all the people who were found with him at Jerusalem, at the same time when he received the vessels of the house of the Lord, which were carried out of the temple, to return them into the land of Judah.' In the tenth verse of the first chapter commences the letter of the exiles to the Jews at Jerusalem. This letter contains an exhortation to pray for the King of Babylon, and the exiled brethren, to confess their sins, and to pray according to a certain form, which is subjoined. It is not quite certain where the letter of the exiles terminates and the real book of Baruch commences. It seems, however, that the real book begins at the ninth verse of the third chapter; there, at least, commences the reproof of the Israelites, on account of their departure from the law of God. This is succeeded by the assurance that the people, after having been punished, should not always remain in misery. (Chap. iv. 4—8.) Then follows an elegiac song of Jerusalem personified (chap. iv. 9—29), and a strain of consolation addressed to Jerusalem, containing a promise of restoration. (Chap. iv. 30; v. 9.)

The authenticity of the book of Baruch was not recognised either by the antient Jews, or the fathers of the Christian church. But the Council of Trent anathematizes those who exclude it from the canon of the Old Testament.

To the editions of the book of Baruch now in use is subjoined a letter of Jeremiah to the exiles in Babylon. In some manuscripts this letter is found separately. It contains a denunciation against idolatry, and seems to be an imitation of Jer. x. 1—16, and xxix. 1—23. The second verse of the second chapter of the second book of the Maccabees seems to refer to it.

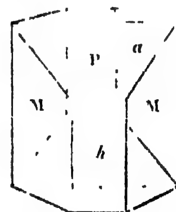
The version of the book of Baruch found in the Vulgate was not executed by Jerome, but is a more antient translation. Joseph Maria Caro published another old Latin version, at Rome, 1688, 4to. The London Polyglott contains a Syriac and a Latin version of Baruch. In the Paris Polyglott is a Syriac version of a book of Baruch, different from the Greek copies.

Further information concerning the book of Baruch may be found in the Introductions to the Old Testament, by Eichhorn, Jahn, Berthold, De Wette, and others. (Grüneberg *Exercitatio de Libro Baruchi Apocrypho*. Gött. 1796; 8vo.)

BARY'TES. [See BARIUM.]

BARYTO-CALCITE, a mineral first shown by Brooke to be a hitherto-unknown species, and described by him in the *Annals of Philosophy* for August, 1824, occurs in considerable quantity, both crystallized and massive, at Alston in Cumberland. The form of the crystal is an oblique rhombic prism, as will be seen in the accompanying figure, the following being the measurements as given by Mr. Brooke:—

P on M or M′ .	102° 51′
P on a . . .	147° 34′
P on h . . .	106° 8′
M on M′ . .	106° 54′
M on h . . .	143° 27′

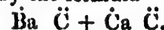


This form was variously modified by a number of planes, so dull as not to admit of measurements sufficiently accurate to allow their character to be obtained, and they have, consequently, been omitted in the figure. Two bright cleavage planes are readily obtained in the directions of the faces P and M.

It is composed, according to Mr. Children's analysis, of—

Carbonate of baryta	65·9
Carbonate of lime	33·6

together with a very small quantity of sulphate of baryta, and may therefore be justly considered as an atomic combination, expressed by the formula



$$Ba\ \ddot{C} + Ca\ \ddot{C}.$$

Its lustre is vitreous, inclining to resinous; the hardness = 4; and the specific gravity = 3·66.

BA'RYTON, or BARITONE, from βαρύς, heavy, grave, and τόνος, tone, the male voice, the compass of which is between that of the tenor and the base. Dr. Bennati, in his recently-published *Recherches sur la Mécanisme de la Voix Humaine*, applies a new term, *baritenor*, to this voice, which is much to be preferred to the above, for that, according to its etymological meaning, would seem to imply a low rather than a high base.

BARYTON is also the name of an instrument similar to the viol da Gamba [see VIOL DA GAMBA], invented in 1700, but now entirely disused. Haydn composed no less than 163 pieces for the baryton, or baritono, which was the favourite instrument of his patron, Prince Nicola Esterhazy.

BAS, ISLE OF, on the north coast of the department of Finistère in France, was formerly included in the province of Basse Bretagne, or Lower Brittany. It lies off the town of Roscoff, and there is a fort upon it to protect the road of Roscoff. The coast in this part is very rocky. The island is about three or four miles long from east to west, and one and a half to two miles broad from north to south. It lies in 48° 45′ N. lat., 4° W. long. from Greenwich.

The inhabitants, who are given in the *Dictionnaire Universel de la France* (Paris, 1804) at about 800, are chiefly

engaged in fishing. They reside in a village of the same name as the island.

This island is separated from the main land by a channel of about three quarters of a mile over. It has been said that there was once a considerable town here, but this is merely a conjecture, nor are there any vestiges of such a place to give it probability.

The population must have increased much during the latter part of the last century, as in the *Dictionnaire des Gaules, &c.* of Expilly (Paris, 1762), it is given only at 160 persons. (*Dictionnaire Universel de la France*; Expilly, *Dictionnaire des Gaules, &c.*)

BAS, sometimes called BAS EN BASSET, a town in the department of Haute Loire in France. Its distance from Paris cannot be accurately given, as it is not on any of the main roads. It is in 45° 18' N. lat., 4° 6' E. long. from Greenwich.

This town is on the left bank of the Loire, but far above the place at which the river becomes navigable. It is subject to be overflowed by the waters from the mountains, which lie to the west of it and bound the basin of the Loire. The territory around is fertile in corn and wine. The manufactures are pottery, blond lace, common or bone lace, and ribands. The last two are made by women. Population of the commune in 1832, 5524.

BAS OHA, a commune in the province of Liége in the kingdom of Belgium, is bounded on the north by the commune of Moha, on the east by that of Wanze, on the south by the province of Namur, and on the west by the commune of Couthuin Rippe. The Meuse river forms likewise a boundary of Bas Oha, flowing through its whole extent from east to west. That part of the commune which is situated on the Meuse is composed of a very productive alluvial soil; in the other parts, clay, sand, and gravel are found. The agricultural productions consist of corn, wine, fruits, and artificial grasses. The population amounted in 1831 to 629 souls, a large part of whom are engaged in working iron and coal mines.

(Meissers, *Dictionnaire Géographique de la Province de Liége*, 1831.]

BASALT, a hard dark-coloured rock of igneous origin. The chemical composition is variable, as appears from different analyses, two of which, by Beudant (1) and Phillips (2), are beneath, and illustrate this fact:—

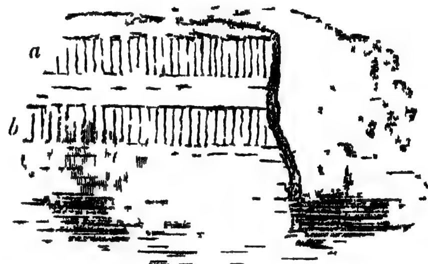
	(1) Beudant	(2) [illegible]	Difference
Silica	59.5	44.50	15.00
Alumina	11.5	16.75	5.25
Lime	1.3	9.50	8.20
Magnesia	0.0	2.25	2.25
Soda	5.9	2.60	3.30
Potash	1.6	0.00	1.60
Oxide of Iron	20.2	20.00	0.20
Oxide of Manganese	0.0	0.12	0.12

True basalt has been regarded as composed of augite, felspar, and oxide of iron; but this definition is far too limited for either theoretical or practical purposes, unless the constituent minerals be considered of variable chemical compositions, as appears to be the case. Since augite and hornblende may, from the researches of Rose, be regarded as the same mineral, it follows that a very fine-grained greenstone containing a considerable per centage of oxide of iron can even under this definition be considered a true basalt. There can, indeed, be little doubt that the same igneous rock has been termed greenstone, when the grains of felspar and hornblende were sufficiently distinct, which when exceedingly fine-grained, has been named basalt. Basalt can only be considered as one variety of that mass of melted rock which has been ejected at various periods from beneath the crust of the globe, and to which various names have been assigned, according to the characters which circumstances have impressed upon different portions of it.

Like others of the same class, basalt occasionally passes into many rocks which have been in a state of fusion beneath the surface of the earth and subsequently ejected. Dr. Hibbert notices a passage of basalt into granite in the Shetland Islands. (Brewster's *Edinburgh Journal of Science*, vol. i. p. 107.) When, however, we view the mass of igneous rocks generally, it appears that basalts are the products of comparatively late geological epochs. We may therefore infer that during the earlier states of our planet, conditions were not favourable to their production, or at least to their propulsion to the surface; though probably some varieties of hornblende rock, particularly when impregnated with much oxide of iron, do not differ materially from basalt in their chemical contents. The mode of occurrence of these rocks and of basalts is, however, very different.

Basalt is a rock of very extensive occurrence on the surface of the earth, and is very frequently detected in the vicinity of volcanoes, both extinct and active. The greatest mass of basalt yet observed is that noticed by Colonel Sykes in the Deccan, constituting the surface of many thousand square miles of that part of India. This immense mass of basalt is either massive, prismatic, or globular, occurs in horizontal beds, and is traversed by dykes [see DYKE] of basalt, which sometimes cross each other. (*Proceedings of the Geol. Soc. of London*, 1833.) There is no trace of any crater in this basaltic region, and indeed this is the case with numerous other districts of basalt, whence it has been inferred that such tabular masses have not been ejected from a conical vent similar to those of volcanoes, but that the basalt of which they are formed rose through cracks and fissures while in a highly liquid state, spreading out in sheets of melted matter over the adjacent rocks.

As basalt is frequently columnar, it is a rock which has excited much popular attention, and travellers have been sometimes induced to describe rocks as basaltic merely because they were columnar, which however is a character that this rock possesses in common with many others of igneous origin. When basalt occurs in horizontal tabular

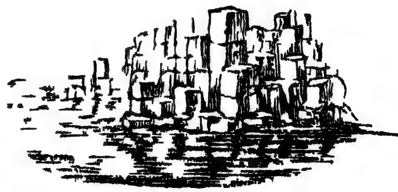


masses and is columnar, the columns are generally perpendicular, as at *a* and *b* in the annexed figure. When basalt forms the substance of a perpendicular dyke cutting through other rocks, and is columnar, the columns are usually horizontal in the manner represented beneath, *a* being the basaltic dyke, and *b b* the rocks through which the dyke passes.

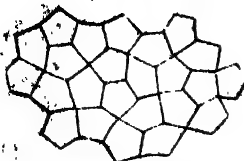


Basaltic columns are sometimes also curved, and of this mode of occurrence there is a beautiful example in the island of Staffa.

When basaltic columns are jointed, and exposed to the destructive action of breakers on a coast, they often, as in the annexed sketch, present the appearance of some great ruined work of art. Such deceptive appearances are, however, not



confined to coasts, for in some countries, and especially in India, masses of basalt rise suddenly from the plains, and the broken columns, shooting upwards, may readily at a distance be mistaken for buildings. When viewed from above, the heads of a number of basaltic columns, if unbroken, appear like a pavement composed of numerous polygonal pieces of stone fitted into each other, as in the following figure:—



According to Mr. Gregory Watt, the columnar structure of basalt is due to the pressure of numerous spheres or spheroids on each other during the cooling of the rock, such spheres or spheroids being produced in planes of refrigeration or absorption. This author took seven hundred weight of an amorphous basalt named Rowley Rag, kept it in fusion for more than six hours, and cooled it so gradually that eight days elapsed before it was taken from the furnace. The shape of the mass was uneven, and while the thinner portion was, in consequence of more rapid cooling, vitreous, the thicker was stony, the one state passing into the other. It was observed that numerous spheroids had been formed, sometimes two inches in diameter. They were radiated with distinct fibres, the latter also forming concentric coats when circumstances were favourable to such an arrangement. When the temperature had been sufficiently continued, the centres of the spheroids became compact before they attained the diameter of half an inch. When 'two spheroids came into contact no penetration ensued, but the two bodies became mutually compressed and separated by a plane, well defined and invested with a rusty colour,' and when several met they formed prisms.

The following are Mr. Gregory Watt's inferences from these facts:—'In a stratum composed of an indefinite number in superficial extent, but only one in height, of impenetrable spheroids, with nearly equidistant centres, if their peripheries should come in contact in the same plane, it seems obvious that their mutual action would form them into hexagons; and if these were resisted below, and there was no opposing cause above them, it seems equally clear that they would extend their dimensions upwards, and thus form hexagonal prisms, whose length might be indefinitely greater than their diameters. The farther the extremities of the radii were removed from the centre, the greater would be their approach to parallelism; and the structure would be finally propagated by nearly parallel fibres, still keeping within the limits of the hexagonal prism with which their incipient formation commenced; and the prisms might thus shoot to an indefinite length into the undisturbed central mass of the fluid, till their structure was deranged by the superior influence of a counteracting cause.' (*Observations on Basalt, &c.; Phil. Trans.*, 1804.)

According to this theory, which is certainly the best hitherto framed to account for the columnar structure of basalt, the irregularity of the prisms would obviously depend upon the unequal distances of the centres of the spheroids, and the consequent unequal pressure; and it is further inferred that the joints sometimes observable in basaltic columns correspond with the concentric coats noticed above. Two of the most beautiful examples of columnar basalt hitherto discovered are found in the British islands, one on the north-east coast of Ireland [see GIANT'S CAUSEWAY], and the other among the Hebrides [see STAFFA]. The largest columns yet observed are found at Fairhead at the former place, where, according to the accurate measurement of some by the Ordnance trigonometrical survey of Ireland, they are 317 feet in height, the sides of these enormous prisms occasionally measuring 5 feet.

Some non-columnar basalts present no trace of any particular arrangement of parts, while others show a globular structure, so that when the rock becomes much decomposed it has the appearance of numerous bombshells and cannon-balls cemented together by a ferruginous substance. This globular structure is sometimes also apparent when the decomposition of the rock has not been considerable, being well exhibited in the concentric arrangement of coats of basalt round centres at variable distances from each other, in the manner represented beneath.



Other basalts are amygdaloidal, containing a variety of substances, such as agates, zeolites, and other minerals, which have been infiltrated into cavities formed by bubbles of gas or vapour while the rock was in a state of fusion. As these bubbles have sometimes been lengthened by the flow of the rock before it finally cooled, the infiltrated contents filling such lengthened cavities have the appearance of almonds sticking in the mass of the rock, whence the name amygdaloid. When, as sometimes occurs, a great tabular mass of basalt is composed of superimposed beds, some columnar, some amorphous, and others amygdaloidal, these characters are sufficient to authorize a conclusion that the whole mass has not been produced at one upburst of basalt, but that there were several flows of melted matter to which different conditions gave different characters; the amygdaloidal structure, particularly, pointing to the absence of very considerable pressure upon the basalt so characterized, before it became solid.

BASCINET, BASINET, or BASNET, was a light helmet, so called from its resemblance to a basin, generally without a visor, though, from different quotations of the term *bacinez à visières*, cited by Ducange (*Glossar.* fol. Franc. ad M. 1681, p. 425) from *Chronicles and Romances of the Thirteenth and Fourteenth Centuries*, it appears that the visor occasionally accompanied it. So in the *History of Dauphiny* we have 'Item duos basignetos cum viseriis, ii. sol. vi. den.' (Meyrick's *Crit. Inquiry into Antient Armour*, vol. iii. Gloss.)

Finchet, says Grose (it should be Fauchet, *Origines des Chevaliers, Armoiries, et Heraux*, 8vo. Paris, 1606, p. 42, b.), supposes them to have been a lighter sort of helmet that did not cover the face, and says he finds that the knights often exchanged their helmets for bascinets when much fatigued, and wishing to ease and refresh themselves, at a time when they could not with propriety go unarmed.

Bascinets were worn in the reigns of Edwards II. and III. and Richard II. by most of the English infantry, as may be repeatedly seen in the rolls of parliament and other public records. (See Grose's *Treatise on Antient Armour*, 4to. Lond. 1786, pp. 10, 11.)

Sir Samuel Meyrick, in his *Engraved Illustrations of Antient Arms and Armour*, vol. ii. pl. xiv. fig. 3, gives a bascinet with its ventaille, baviere, or visiere of the time of Richard II.; and pl. lxxiv. fig. i., a bascinet of the time of Henry V.

BASE, in Architecture. [See COLUMN.]

BASE, in *music*, from Βάσις (basis), the base or foundation, the lowest part, whether vocal or instrumental. This word is frequently written *bass*, but the etymology, and more especially the pronunciation, are decidedly in favour of the orthography here adopted, which is sanctioned by Dr. Johnson and other high authorities. 'The *base*,' says Rousseau, 'is the most important of parts, the whole harmony is founded on it; hence it is a maxim with musicians, that when the base is good the harmony is rarely otherwise.' M. Sulzer adopts this opinion; and we do not differ from two such able, such philosophical writers, without having duly considered the question. But if by the words *most important* is meant that which can least be dispensed with, then both assuredly are in error, for the highest part or melody is, unquestionably, the most essential. It is the theme, the subject, without which the other parts, however numerous, are unintelligible. It being understood that we are not speaking of instrumental accompaniments, such as violin, flute, &c., which, in the score, are frequently above the highest voice part or melody. In composition in two parts the tyro finds it more difficult to write a correct base than a tolerable melody, but to the sound musician the subject and intermediate parts require more thought than the base.

BASE, or BASS, a name sometimes given to the violoncello.

BASE-CLEF. [See CLEF.]

BASE, CONTINUED. [See CONTINUED BASE.]

BASE, DOUBLE. [See DOUBLE BASE.]

BASE, FIGURED. [See FIGURED BASE.]

BASE, FUNDAMENTAL. [See FUNDAMENTAL BASE.]

BASE, GROUND. [See GROUND BASE.]

BASE, THOROUGH. [See THOROUGH BASE.]

BASE VOICE, the lowest male voice, the usual compass of which is from G or F, below the base staff, to D or E above it; but some few voices exceed the limits here assigned, and must be considered as exceptions to the rule. Handel, in the aria 'Fra l'ombre,' in his opera of *Sosarmes*, exacts

from the singer a compass of two octaves—from F above the staff to F below; and Purcell, in his anthem, 'They that go *down* to the sea in ships,' altogether mistaking the meaning of the word 'down,' and in a wretched endeavour to express descent, writes for the base a run of notes from D above to D below the staff.

BASE'CLES, a town and commune of the province of Hainault in Belgium, bounded on the north by the communes of Thumaide, Wadelincourt, and Ellignies St. Anne; on the east by Quévaucamps; on the south by Blaton; and on the west by Peruwelz. The inhabitants of this commune, who in 1831 amounted to 2275 persons, reside almost entirely in the town. The soil varies in different parts of the commune. In some places a friable clay, in others vegetable mould mixed with sand, a light sand containing flints, or a heath, are met with. The principal vegetable productions are—wheat, rye, barley, oats, trefoil, and rape. The cultivation of the soil is carefully conducted, and the more productive lands are constantly in crop. Considerable quarries of compact, blue limestone are worked: the stones are used for paving, and for other common purposes, the chippings being converted into lime, which is much used for dressing the land, as well as for building purposes. Another description of limestone, to which the name of Basècles marble has been given, is of a bluish-black colour, and capable of receiving a high polish: it is used for paving the interior of buildings. A considerable trade is carried on from the commune in this stone and in lime.

(Meisser's *Dictionnaire Géographique de la Province de Hainaut*, 1833.)

BASEL, CANTON OF, extends about twenty-three miles in length from N.W. to S.E., and about fourteen in its greatest breadth. Its form is very irregular, being much narrowed about the middle of its length by a projection of the territory of Soleure on one side, and a bend made by the Rhine on the other, which reduces its breadth at that point to about three miles. It contains, according to Franscini's *Statistics* (1827), about 270 English square miles (Dr. Neigebaur, in 1831, states the area at only 180 square miles), and about 53,000 inhabitants: in 1774 it only numbered 38,500. The greater part of the canton lies upon or between the lateral offsets of the Jura Mountains, the principal ridge of which, called Hauenstein and Schaffmatt, divides the southern part of the canton from Soleure. The highest summit of the Hauenstein, on the road from Soleure to Basle, is nearly 3,000 feet above the level of the sea, and the highest point of the Schaffmatt is about 4,000. The northern part of the canton slopes towards the banks of the Rhine, and forms a plain round the town of Basel. This part of the territory is very fertile in corn and wine; the rest abounds in rich pastures, which feed about 12,000 head of large cattle, and as many sheep. The Rhine supplies good fish in abundance. The other river of the canton is the Birs, which rises in the Munster Thal, in the former Bishopric of Basel, enters the canton at Æsch, passes by the field of St. Jacob, memorable for the battle between the Swiss and the French in 1444, and joins the Rhine about half a mile to the east of the town of Basel. It is a mountain river, rapid, and subject to sudden floods.

The Canton of Basel is divided into seven districts, two of which, namely Riehen and Klein Huningen, are north of the Rhine, and the others, Farnspurg, Homburg, Waldenburg, Munchenstein and Liechstall, are south of that river. These districts were each governed by an obervogt or bailli appointed by the councils, two-fifths of the deputies of which were elected by the country. The country people having revolted in 1831, demanded to have the nomination of two-thirds of the deputies; the town proposed to give them one-half, and four more, but this was refused by the country. Town and country carried on a sort of petty warfare for two years, inflicting considerable injury upon each other, until through the interference of the Diet a separation took place in 1833, by which the town of Basel, with the two small districts north of the Rhine, and a narrow strip of ground to the south adjoining its walls, forms a separate state or republic called Basel Town: the rest of the canton, composed of the five larger districts, forms another republic called Basel Country, with Liechstall, a town of about 3,000 inhabitants for its capital. Each of these two states sends its deputies to the Helvetic Diet, but the two have only one vote between them, and if they do not agree the vote is null, as is also the case with regard to the Cantons of Appenzell and Unterwalden. The deputies of Basel Country took their seats in the Diet of 1834. The population of Basel Town and its territory is about 20,000 inhabitants, and that of Basel Country about 33,000. All the manufacturers, the capitalists, and the principal traders are in the town of Basel; the other part is entirely agricultural. The funds of the university, the church, and school endowments have been divided between the two fractions of the canton. The library of the university, which contained between thirty and forty thousand volumes, has been likewise divided. The public revenue of the whole canton, previous to the separation, was 436,000 Swiss francs, or about 27,000*l.* sterling. The religion of nine tenths of the people, both in town and country, is the Protestant, according to the Helvetic confession of faith. The language is a dialect of the Swiss-German, but French is generally understood in the town, and also in many parts of the country. The territory of Basel Town borders on France on the west, and on the Grand Duchy of Baden on the north. Basel Country borders on the Cantons of Soleure and Aargau; the Rhine divides it on the north from the Grand Duchy of Baden. The education of the rural districts has been till now very much neglected, and the country people are accordingly among the rudest in Switzerland. (*Geographisches Lexicon der Schweiz*: Ebel, *Manuel du Voyageur*; Dandolo, *Swizzera Occidentale*.)

BASEL, BASLE, or BÂLE, the capital of the Swiss canton of the same name, contains within its walls the site of the antient Basilia, built by Valentinian I. After the destruction of Augusta Rauracorum in A.D. 450, of which some ruins are still to be seen at Augst two leagues from Basel, this town gradually rose into consequence. It early became an episcopal see. In 917 the town was destroyed by the Magyars: but although it suffered at later dates repeatedly from the plague, and in 1356 from a terrible earthquake, which was followed by a conflagration that lasted eight days, and almost destroyed the whole town, yet it always recovered from these disasters, and maintained its rank as a free city of the German empire. Its brave citizens successfully resisted the surrounding nobility. In the year 1460 the University of Basel was established, after the citizens had obtained permission by a bull from Pope Pius II. The internal dissensions which had distracted it having also subsided, Basel was then at the height of its power, and in the possession of a small territory. In 1501 it entered the Swiss confederacy, being then the most flourishing town of Switzerland, and an important trading place. In consequence of the town adopting (1527) reformed principles, the bishop left it, from which time it has been entirely independent. But down to the latest times its population has gradually diminished, which circumstance has been partly ascribed to the almost complete exclusion of strangers from becoming burghers of Basel, and none but burghers being allowed to carry on business in that city.

From 1431 till 1448 Basel was the seat of a great council. During the sixteenth century numerous editions of Greek and Latin authors, as well as other works, were printed in this town. In the year 1795 the peace between France and Prussia, and France and Spain, was concluded within its walls.

Basel, still the largest, though not the most populous and the richest town in Switzerland, is situated in 47° 33′ 37″ N. lat., and about 7° 35′ E. long., at an elevation of about 800 feet above the sea level, at the point where the Rhine changes its western into a northern course. The Rhine divides it into two parts, Great and Little (Gross and Klein) Basel, which are connected by a wooden bridge. Great Basel, on the left bank of the Rhine, is built on rather uneven ground. The whole town contains 2125 houses, and 16,800 inhabitants, mostly of the reformed religion: in former times they amounted to more than twice that number. Some parts of the town have still an antient appearance. The streets of Great Basel are mostly confined and crooked; in the suburbs and Little Basel they are broad and regular. There are fifty-three public fountains in the town, many adorned with works of antient sculpture. The fountain in the fish-market is considered one of the finest smaller monuments of Gothic architecture in Switzerland. Of the churches the Münster (cathedral), which stands in an elevated part of the town, is the most remarkable. It was built in 1019, and contains, among other monuments, the tomb of Erasmus. Its two steeples are each 205 feet high. Adjoining to it is the great hall in which the council of Basel held its sittings, and a fine cloister. The town-house contains two

large and finely-ornamented halls. In the armoury is the coat of mail of Charles the Rash, a trophy of the Burgundian war. The town has several fine public buildings, among which are the post-office, the casino, and the theatre, built in an elegant style. Many private houses equal in beauty and internal cleanliness those of the best towns in Europe, and remind us of Holland. The citizens of Basel are remarkable, above all others in Switzerland, for grave deportment and business-like habits.

The Pfalz (Palatium), near the Münster, which is a terrace raised on a wall seventy-five feet above the Rhine, and planted with horse-chestnut trees, commands a beautiful prospect of the river, the town, and the country. Besides the university Basel has many establishments of education. The evangelical *missions-seminar* (missionary college), established in 1816, has already its stations in southern Russia and in India. Of the several public and private libraries, the university library is the most remarkable, and contains a collection of paintings, drawings, and woodcuts by Holbein. There is a botanical garden, and several charitable institutions for people of all ages.

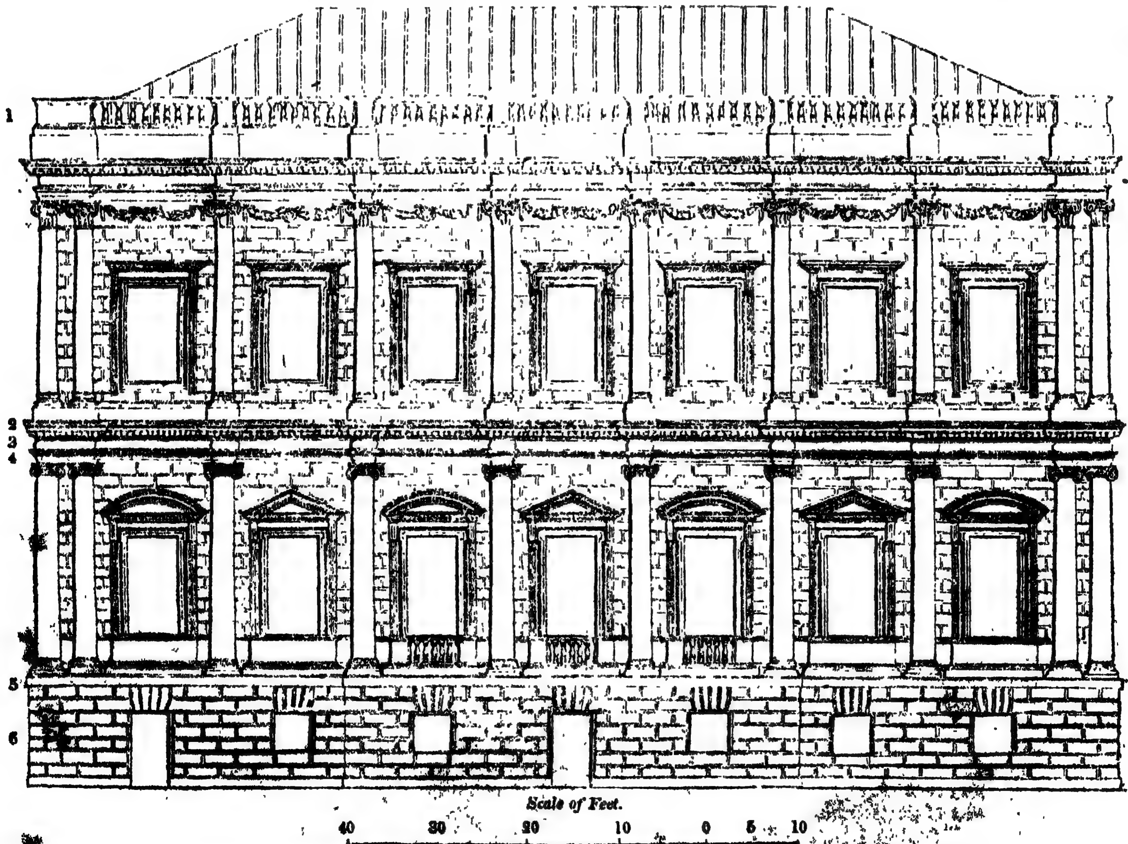
The transit trade employs many hands. Business in bills of exchange, and the wine and book trade are also considerable. About 5000 looms are employed in manufacturing silk ribbons. The paper of Basel was formerly more celebrated, as there was less competition. There are likewise large tanneries, tobacco manufactories, &c.

Basel is the birthplace of Euler, of James, John, and Daniel Bernouilli, and of Buxtorf. It contends with the Bavarian towns of Grünstadt and Augsburg for being the birthplace of Holbein. (*Communication from Zürich, Switzerland.*)

BASEL, COUNCIL OF. [See COUNCILS.]

BASEMENT, in architecture, is the lowest story of a building, forming the base of a private house or public edifice. This feature of a building should possess externally the character of strength; and, accordingly, in the designs of Palladio, and the other great masters of the Italian school, we find that the basement has a massive appearance, capable of sustaining the order or orders which are often placed above it. In edifices used as dwellings the basement is high; but in churches and other public buildings it is usually kept low. Some basements are as high in proportion as the floor or story placed above it, while others are not more than a third or a half of the height. The proportions of basements vary according to the conveniences required in the lower story, or to the importance attached to the floor or floors which they may support. Sir William Chambers, in his *Civil Architecture*, gives rules for the proportions of the parts forming the characteristic features of the basement, but at the same time he admits that 'the proportions of these basements are not fixed,' but depend chiefly on the nature of the apartments forming the ground-floor. 'In Italy,' he says, 'where the summer habitations are very frequently on that floor, the basements are sometimes very high. At the palace of the Porti, in Vicenza, the height is equal to that of the order placed thereon; and at the Thiene, in the same city, its height exceeds two-thirds of that of the order, although it be almost of a sufficient elevation to contain two stories; but at the Villa Capra and at the Loco Arsieri, both near Vicenza, the basement is only half the height of the order, because in both these the ground-floor consists of nothing but offices.' (*Treatise on Civil Architecture*, by Sir William Chambers.) These four works enumerated present different proportions, and are all from the designs of Palladio.

The edifice at Whitehall, to which we have frequently referred, and the Cathedral of St. Paul's, London, have both a low basement. In basements the masonry is usually



[Whitehall, London, from a drawing accurately measured and delineated by Mr. William B[illegible], architect.]

1. Balustrade. 2. Cornice. 3. Frieze. 4. Architrave. 5. [illegible]. 6. Basement.

rusticated and set upon a plinth, on which there is sometimes a moulded base; the upper part of the basement is surmounted with a broad band, under which, at times, mouldings are employed. A cornice is also used occasionally instead of the band.

In the beautiful palaces of Rome and Florence the basements are finely proportioned. For geometrical representations of these buildings we refer to the architectural work of MM. Percier et Lafontaine, entitled *Palais de Rome et de Florence*. The published designs of Palladio, Vignola, and Scamozzi, may also be consulted with advantage by the student in architecture.

In the edifices of antiquity the basement is usually low, and intended to support an order of columns. The monu-

ments of Lysicrates and Philopappus at Athens are, however, examples of high basements.

BASHA. [See PASHA.]

BASHAN (בשן and הבשן *fertile soil*), is called by the Septuagint Βασάν, by Eusebius Βασανῖτις, by Josephus and Ptolemy Βαταναία (Batanæa). The last form arose from the Aramæan pronunciation בתן *Bathan*, for בשן *Bashan*, in Samaritan בתנין *Bathanin*. Bashan belonged to Gilead in the widest sense (Jos. xiii. 30, 31), but in a stricter sense it was distinguished from and situated to the north of Gilead (Jos. xvii. 1, 5, xx. 8; 2 Kings x. 33; Micah vii. 14.). Bashan comprehended Golan and its territory (Deut. iv. 43; Jos. xxi. 27), and bordered in the north upon the Syrian districts Geshuri and Maachathi: in the south it did not reach to the river Jabbok. (Deut. iii. 13-16.) Its western boundary was the Jordan, and the eastern limits are undefined. Bashan or Batanæa is now called *El Bottein* or *Belad Erbad*, a district south of Dicholan and west of Hauran. Seetzen and Burckhardt have described in their travels the geology of *El Bottein*.

Bashan was a kingdom under Amoritish sovereigns who resided in Ashtaroth and in Edrei. (Deut. i. 4; Jos. ix. 10, xii. 4.) Og was the last king of the Amoritish dynasty. In the battle of Edrei, about the year 1452 B.C., the Israelites smote Og, with his sons, and all his people, until there was none left alive; and they possessed his land. (Num. xxi. 33-35.) Moses gave Bashan unto the half tribe of Manasseh (Deut. iii. 13), B.C. 1451. At the commencement of the Christian æra Bashan belonged to the tetrarchia of Philippus (Joseph. *Antiquit.* xv. 10, 1, xviii. 4, 6; Bell. Jud. ii. 6, 3), and afterwards to the tetrarchia of Agrippa II. (*Antiquit.* xx. 7, 1.) The fertile plains of Bashan produced men of such uncommon stature, that it was called the land of giants. (Deut. iii. 13.) The oaks, sheep, and oxen were proverbially fine. (Isa. ii. 13; Ezek. xxvii. 6; Zach. xi. 2; compare Jer. l. 19; Mich. vii. 14; Deut. xxxii. 14; Ps. xxii. 13—in the English Bible verse 12, but in Hebrew verse 13.) These plains are intersected by basalt ridges, which are prolongations of the Antilibanus, the mountains of which being higher than Zion are alluded to in Psalm lxviii. 15, 16; 'The hill of God is as the hill of Bashan; an high hill as the hill of Bashan. Why leap ye, ye high hills? this is the hill which God desireth to dwell in; yea, the Lord will dwell in it for ever.' It appears from various ruins that the towns of Bashan were chiefly built on heights. Porphyrius was a native of Batanæa.

BASHEE ISLANDS, a cluster of five islands and four rocky islets, lying between Luzon, the great Philippine island, and Formosa, between 20° and 21° N. lat., and in 122° E. long. The five islands, which are inhabited, were named by Dampier, who visited them, Bashee, Orange, Groat, Monmouth, and Grafton Islands. The name of Bashee was given in consequence of the addiction of the natives to the use of a spirituous liquor which they distil from rice and the juice of the sugar-cane, and to which liquor the name of Bashee is applied. The inhabitants are a strong athletic race, very inoffensive in their manners. Dampier gives a favourable account of their civility.

The Spaniards were induced to take possession of these islands in 1783, from observing that the inhabitants were accustomed to wear thick golden wire as an ornament. The metal of which this wire was made is washed down from the mountains by the torrents in the rainy season. The medium of exchange in these islands formerly was iron, but the natives have since learned the use of the precious metals from their European neighbours.

The governor resides, with a small establishment of soldiers and ecclesiastics, on Grafton Island, on the western side of which is a good anchoring-ground. The islands are plentifully supplied with water, and produce sugar-canes, plantains, yams, and other vegetables. They likewise contain numerous flocks of goats, and a great abundance of hogs.

(Dampier's *Voyages*; Meares' *Voyage to Nootka Sound*; Hamilton's *East India Gazetteer*.)

BASHKIRS, or more correctly **BASHKURS**. The province of Orenburg, which lies between the provinces of Tobolsk, Perm, Vjatka, Kasan, Simbirsk, Ssaratoff, and Astrachan, and adjoins the territory of the Cossacks of the Ural, which also forms part of the province of Orenburg, and is bordered by the Caspian, is separated from the steppe of the Kirgis-Cossacks by the Ural, Ui, and Oby, and is principally inhabited by what are termed military tribes. The Orenburg line extends 2000 versts (about 1326 miles) from Sverinogolovsk to Gurjew, meeting the boundary of Siberia in the north and the banks of the Caspian in the south. This line, by which the Russian provinces are separated from the Kirgis-Cossack territory, describes at the same time a zigzag, of which Sverinogolovsk, Orsk, and Gurjew form the prominent points on the Kirgis side. The occupation and maintenance of this line is the principal duty assigned to the inhabitants of the adjoining provinces, the Cossacks of Orenburg and the Ural, the Bashkirs, Meshtshuses, and Teptars, in conjunction with twelve battalions of infantry, a portion of whom are settled as colonists in these regions. In maps this line appears to be an uninterrupted series of forts; in fact, most of the settlements along it are termed kreposts, or forts, though they are nothing but ordinary open villages; nor are there more than two or three spots, besides Orenburg, which possess either walls or ditches. The colonies of Cossacks are placed between these kreposts, and the communication between them is kept up by means of piquets and patroles, stationed at intervals of two or three miles from each other, at signal posts covered with straw. Independently of a few tracts held by the crown, or by Cossacks, nobles, manufacturers, or private persons, the whole of the province of Orenburg, and some portions of the adjacent provinces, belong to the Bashkirs; setting aside the political subdivision of their territory into circles, it is distributed into cantons, clanships, jurtes, and villages. The cantons are twelve in number; of these the three first and smallest lie within the province of Perm, and an inconsiderable portion of the eleventh within that of Vjatka. According to their present constitution, each canton, so far as concerns the duties which its inhabitants have to discharge in the field, is subject to a Bashkir elder; but in all other respects they are under the regular civil authorities. In this particular their constitution varies from the Cossack system, though they stand on the same footing as the latter with regard to rank and duties. It is difficult to say from what source the Bashkirs derive their descent; they are Mohammedan Sunnites, speak the Tartar dialect, call themselves *Bashkurs*, shave their heads, wear a small vest terminating in a point behind, a high flat-crowned cap, an outer garment like an Asiatic sleeping-robe with a girdle, and carry a pike and bow and quiver: those who are able to obtain a sabre, wear it; but fire-arms are a rarity among them, although one-half of such as are upon active service are required to provide themselves with them. Little is known of the history of these people, for we have scarcely any record of them before the date of their subjection by the Czar John the Terrible. There exists, however, a tradition among them, that they are descendants of the Buriates, a Mongolian race, who live about the banks of the Irkutsk, and that their ancestors were driven out by invaders from the south, and, taking a south-westerly course across the Ural mountains, settled in the vicinity of those mountains. The received opinion, however, is, that they are a remnant of the Nogay-Tartars, though most Asiatics call them 'Ishtiaks;' and some, again, consider them to be the 'Bash-uru' (Bambypy, Russ.), great thieves or good-for-nothing fellows, who remained behind when the Nogays abandoned the neighbourhood of the Ural mountains and settled farther in Asia. Physically and psychologically there is, at all events, undeniable evidence that the Bashkirs form a race between the Fins and Turks: the Fin, indeed, has a decided Mongolian cast of features, and it is not impossible that the Bashkirs, after all, are of Turco-Mongolian origin. The land which they inhabit is full of mountains and forests, rivers, streams, and lakes, luxuriant pastures, and an incalculable store of subterraneous wealth, if that can indeed be called subterraneous wealth which lies so close to the surface of the soil, that the largest masses of gold which have ever been found, and of which the heaviest weighs 288 ounces 3 grains, have been met with immediately below the grass. The climate is in general fine and healthy, though the winter is long and somewhat severe. The expanse of waste along the eastern frontier, however, renders the climate in that direction inhospitable. The summer is exceedingly hot, and its heats convert the Buran or whirlwind, which prevails when the thermometer stands above 97° of Fahrenheit, into a dreadful scourge, by which numbers of human beings lose their lives. This sirocco is almost insupportable, from the dust and heat by which it is accompanied; but it does not spread into the interior of the country. The amount of the

Bashkir male population appears, according to Rütschkau, to have been 106,176 in 1754, but no very accurate enumeration then existed. At present, the twelve Bashkir cantons contain 183,390 males, viz.:—

	Officers	Non com.	Privates.	Total.
On the military muster-roll	2578	1586	68,657	72,821
Discharged	1199	100	22,841	24,140
Under age				84,134
Ecclesiastics				2,295
Total	37,7	1686	91,498	183,390

This enumeration does not include the Meshtshures, who inhabit five cantons of their own, the Teptars, who form two regiments, or the other inhabitants of the province of Orenburg; neither does it comprise the Bushkars, who have migrated to Saratoff, and have been incorporated with the Cossacks of the Ural. The Bashkirs do not pay any tax, but they are bound to provide post-horses, supply men for the frontier cordons, and hold themselves ready for any foreign service. Their liability to serve begins at the age of seventeen, and closes with that of forty-five. Those in the remoter cantons have a journey of upwards of three hundred miles to perform before they reach the frontier line, where they either bivouac, or live under mud huts, from the 16th of May to the 16th of November, during which interval only the inroads of the Kirgises are to be apprehended. Their pay on this service is but one rouble (about 11*d.*) monthly.

Great injustice has been done to the Bashkir; a summer's residence in his society would go far to correct the bad opinion entertained of him. In spite of every effort made by the government itself, he is cruelly oppressed by the subaltern authorities; and his worst vice is that of horse-stealing. He does not much regard an oath sworn upon the *Koran*; but the 'gumus,' or oath, which he takes over the grave of his elder, is held inviolably sacred. The Bashkirs are good horsemen, but indifferent soldiers. They cherish an inveterate hatred against the Cossacks, whom they excel both in courage and muscular power; and though the expertest of bowmen (for they rarely miss a mark at forty paces distance), their weapons are inferior to those of the tribes in the Caucasian territories. In battle, the Bashkir usually brings his quiver, which hangs behind, in front of his breast, takes two arrows between his teeth, and lays two others upon his bow, which he discharges one after the other with great rapidity. When attacking, he presses down close upon his horse, rushes with hideous yells upon his foe, his arms and neck bare, and, after he has shot his four arrows, thrusts impetuously at him with lance in rest. The Bashkir horse is in some esteem: it is small, strong, and durable; but not to be compared, in general, with the Cossack and Kalmuck breeds. The majority of this people subsist by rearing cattle, and a few by agriculture. They pass the winter in villages, living in clean wooden cabins; but in summer not a soul is to be found in them; all are abroad with their herds in the open field, dwelling under tents of felt. Prepared horses' milk and 'krut,' a kind of cheese as hard as stone, form their principal food; and they never fail to take a stock of the latter with them, which they steep in water, when they go upon service. It serves them for a length of time instead of bread or other food. Some of them are great sportsmen, for they have game in superabundance; and the use of the falcon is common among them.

Their customs and habits are of Tartar origin, with the exception of the female dress, which is evidently Finnic: their high-priest resides at Ufa; they have no longer any military chieftains, but for nearly a century past have shown themselves good subjects of the Russian crown. In disposition, they are faithful, docile, and ready to oblige; and the traveller may range across the country with as much security as along the safest road in Europe. The ukase of 1832, by declaring them owners of the gold-mines on the eastern side of the Ural Mountains, upon payment of one-tenth of the produce to the crown, has induced private individuals to take leases of nearly every inch of the land in that quarter, on the simple condition of paying the Bashkir landlord another tenth by way of rent. (Extracted from a *Report made by* Dr. Dahl *of Orenburg, in February,* 1834.)

BASIL, in botany. [See OCYMUM.]

BASIL, BASILI'US, Bishop of Ancyra, A.D. 336, was ordained to that office by the bishops of the Eusebian party in the room of Marcellus, whom they had deposed; but Basil was himself excommunicated and his ordination annulled in the Council of Sardica in 347, though he still retained the see. In 351 he attended the Second Council of Sirmium, where he disputed successfully against Photinus. He was one of the greatest enemies to the Arians, but was still considered as the head of the Semi-Arians, who maintained that the Son was similar to the Father in his essence, not by nature, but by a peculiar privilege. This opinion Basil not only maintained, but procured to be established by a council held at Ancyra in the year 358; and subsequently defended it both at Seleucia and Constantinople against the Eudoxians and Acacians, by whom, after being charged with many crimes, he was deposed in 360. St. Jerome informs us that Basil wrote a book against Marcellus, his predecessor, a *Treatise on Virginity*, and some other smaller pieces, of which no remains are extant. (See also Suidas, *Basileius Ancyranus.*) He had the reputation of being a man of learning and eloquence.

Moréri says, although Basil is placed by some at the head of the Semi-Arians, yet it is not quite certain that he was deemed a heretic. St. Basil speaks of him as a Catholic bishop, and Athanasius, in his book of 'Synods,' confesses that Basil of Ancyra, and those of his party, did not differ from those who professed the consubstantiality except in words, and therefore Hilary and Philastrius call the bishops of the Council of Sirmium held against Photinus, of which Basil of Ancyra was the chief, orthodox bishops.

(See Moréri, *Dictionnaire Historique*, fol. Par. 1759, tom. ii. pp. 154,155; Chalmers' *Biogr. Diction.* vol. ii. p. 96.)

BASIL, or BASILI'US (Βασίλειος, Basileius), commonly called ST. BASIL, and on account of his learning and piety surnamed the Great, was born at Cæsarea in Cappadocia, in the year 326; Lardner says in the year 328, or 329. His father was named Basilius, and his mother Emmeleia. In his earlier years he received instruction from his father, but went afterwards and studied at Antioch and Constantinople, under the famous Libanius, according to some modern writers. Cæsarea (whether the Cæsarea of Cappadocia or that of Palestine seems uncertain) is also mentioned as one of the places where Basil studied. That he did study at Constantinople, and afterwards went to Athens, appears certain, but it does not appear so clear that Libanius was his master: he seems rather to have been his fellow-student. (See, however, the letters of Basil and Libanius, 1584, 1602.) At Athens Basil formed a close intimacy with Gregory of Nazianzus. He returned to his native country about the year 355, and taught rhetoric. Some time after this he travelled into Syria, Egypt, and Libya, to visit the monasteries of those countries, where he found the lives of the monks so exemplary, that he resolved, upon his return home, to follow their example, and accordingly he instituted an order of monastic life in the province of Pontus. Eusebius, who had succeeded to the bishopric of Cæsarea in 362, conferred the order of priesthood upon Basil, who some time after, upon some difference with the bishop, retired to the solitude of his monastery, but was reconciled to him about three years after, and grew to so great a reputation, that, upon Eusebius's death in the year 370, he was chosen his successor. It was with some reluctance that he accepted this dignity, but no sooner was he raised to it than the Emperor Valens began to persecute him because he refused to embrace the doctrine of the Arians, of which, indeed, he and Gregory of Nazianzus were strenuous opponents. Valens came twice to Cæsarea, and finding himself unable to influence Basil, determined to drive him from that place. He ceased, however, at length, to molest Basil, who now began to use his utmost endeavours to bring about a reunion between the eastern and western churches, which had been divided upon some points of faith, and in regard to Meletius and Paulinus, two bishops of Antioch. The western churches acknowledged Paulinus for the legal bishop, but would hold no communion with Meletius, who was supported by the eastern churches; but all his efforts were ineffectual, this dispute not being terminated till nine months after his death. Basil was also engaged in some contests relating to the division which the emperor had made of Cappadocia into two provinces. Anthimus, bishop of Tyana, the metropolis of the new province, wished to extend its limits, which Basil opposed. The little village of Zazune was the chief object of dispute, and, to secure it, St. Basil constituted it into a bishopric, which he gave to his friend Gregory of Nazianzus; but Anthimus took possession before him, and St. Gregory, who loved peace, retired from the place. St. Basil had likewise some disputes with Eustathius and Apollinaris [see APOLLINARIS], against both of whom he

wrote, and, in fact, he took a part in most of the controversies of his age. He died January 1, 379, his constitution being much impaired by the austerities of a monastic life. Basil (see Suidas) had four brothers, Gregory, bishop of Nyssa, Peter, also a bishop, and two others who became monks.

Cave has given a list of St. Basil's works. Lardner says many writings have been ascribed to him without ground. Several of his detached pieces were printed before the year 1500; but the first edition of the whole works, in Greek, issued from the press of Frobenius, fol. Basel, 1532, with a preface by Erasmus. The best edition is that which was published by the Benedictines of the Congregation of St. Maur, Greek and Latin, in 3 vols. folio, Paris, 1721-30: the two first under the care of Père Garnier; the third, after Garnier's death, by Père Maran. Garnier took great pains in distinguishing the spurious from the genuine works of St. Basil. M. Herman, a doctor of the Sorbonne, published a *Life of St. Basil*, 2 vols. 4to. Par. 1764.

Syncellus (*Chronog.* p. 203) ascribes to Basil a new recension of the *Septuagint*, which he says was done with great care. The correspondence of Libanius and Basilius is printed in the edition of the *Epistles of Libanius*, by J. C. Wolf, Amst. 1738, 1 vol. fol. Though Libanius was not a Christian, this does not appear to have disturbed the good understanding between Basil and the schoolmaster of Antioch. Basil sent Libanius various Cappadocian scholars with letters of recommendation. (See *Letters*, 1580, 1582, 1594.)

(See Cave's *History of the Fathers of the Church*, fol. Lond. 1683, pp. 216-270; Moréri, *Dictionnaire Historique*, tom. ii. fol. Par. 1759, p. 152; Lardner's *Credibility of the Gospel History*, pt. 2, vol. ix. pp. 112-126; Chalmers's *Biographical Dictionary*, vol. ii. p. 94; Suidas, *Basileius of Cæsarea*.)

BASIL, MONKS OF ST. When St. Basil, bishop of Cæsarea, retired into Pontus, about the year 358, for the convenience of himself and his followers he founded a monastery, to which he gave a written rule for its regulation, the first of the kind that had appeared, and which was soon adopted in numerous other monasteries. This rule shortly spread itself over the East, and, according to the generality of writers, was not very long in passing to the West. Those who adopted it styled themselves of the order of St. Basil; and St. Basil's Rule was, in fact, the parent of that which was afterwards framed by St. Benedict. (See Schlosser's remarks on Basil, *Universalhistorische Uebersicht*, &c. 3 *Th.* 3 *Abth.*)

Dom Alphonso Clavel, the Spanish annalist of this Order (*Antiguedad de la Relig. y Regl. de S. Basilio*, c. viii. § 2), says that Basil's Rule was approved and confirmed by Pope Liberius in the same year in which it was written and published, A.D. 363; afterwards by several other popes; and was, in a later age of the Church, revised by Pope Gregory XIII., who, about 1573, united the religious of this order in Italy, Spain, and Sicily into one congregation. The abridgment of this Rule made by Cardinal Bessarion, during the pontificate of Eugene IV., and approved by Gregory XIII., was also confirmed by Popes Clement VIII., Paul V., and Alexander VII.

Moréri gives 1057 as the date when the order was introduced in the West. St. Saviour, at Messina, is now considered as its chief monastery in the West. The monks of St. Basil in Spain follow the Greek, those of Italy the Latin ritual. The Greek monks are chiefly of this order, which exists to a great extent in Russia; though in that country, if we may rely on Dr. King, the monks have deviated from their original Rule. He says, 'Basil is generally looked upon as the founder of the order of monks which exists in Russia, though, in truth, their Rules, at least those they observe at present, are taken from several different persons; as Ephraim of Edessa, Gregory, Chrysostom, &c.' (See *Hist. des Ordres Monastiques*, 4to. Par. 1714, tom. i. pp. 175-238, where engravings will be found of the dresses worn by both monks and nuns of this order in the respective countries; Moréri, *Dictionnaire Historique*, fol. Par. 1759, tom. ii. p. 154; King's *Rites and Ceremonies of the Greek Church in Russia*, 4to. Lond. 1772, p. 365.)

The order of St. Basil was never, that we know of, introduced into England; though Sir Roger Twysden, in his *Rise of the Monastic State*, p. 5 (as quoted by Tanner, Pref. to *Notit. Monast.* p. ii.) says, 'The monks of Bangor were not unlike the order of Basil, if not of it.' The genuine history of the monastery of Bangor, however, in its earliest period, cannot now be traced upon authority which can be relied on.

BASI'LICA (βασιλικά, βασιλικὸς νόμος). This term denotes a collection or digest of the *Corpus Juris* of Justinian, translated from the original Latin into the Greek language. This work was commenced and brought to its present state during the latter part of the ninth and the beginning of the tenth centuries, under the superintendence of the Greek Emperors of Constantinople. The design of reducing the laws of Justinian into one Greek book from the several Latin collections in which they were known in the Western Empire, is said to have been originally formed, and was certainly in part executed, by Basil I., called the Macedonian, whose reign commenced A.D. 867, and ended in 886, and from whom the book derives its name. Basil's death occurred before the completion of the work; and all that was effected in his time was a kind of Preface, or Introduction, which was called Πρόχειρον των νόμων, and consisted of forty heads, or titles. Leo VI., surnamed the Sage, who succeeded his father Basil, as Emperor of Constantinople, brought the collection considerably nearer to its present form: under his direction it was distributed into six general heads, each of which was subdivided into ten titles; from which circumstance it is entitled in some manuscripts Ἑξάβιβλος (the Six-Book), and in others Ἑξηκοντάβιβλος (the Sixty-Book). The Basilica were, however, finally reduced into their present form by Constantine VII., commonly called Constantine Porphyrogeneta, the son of Leo the Sage, in the early part of the tenth century. From that time the book was commonly used as a code of jurisprudence in the Eastern Empire.

The Basilica contains the code, digests, institutes, and novellæ of the Corpus Juris; and in the latter divisions are inserted some of the later edicts of Justinian himself, of the subsequent Emperors of Constantinople, and of Basil the Macedonian in particular: and also a few extracts from the fathers, and decrees of early councils of the church.

The Greek translation of the Roman law was, in all probability, not made expressly for this work, as the four books containing the institutions of Justinian are known to have been in existence in the Greek language previous to the time of Basil the Macedonian.

Hervetus first published, in Latin only, in 1557, four complete books of the Basilica (lib. 45-48), and two books (28, 29) incomplete. A splendid edition of the Basilica, prepared from a collation of various manuscripts in the Vatican and the Bibliothéque du Roi, was published at Paris by Fabrot, in 1647, seven vols. folio, to which is prefixed a Report to Pope Urban VIII. upon the history of the Basilica, by Joseph Maria Suarez; but this edition only contains thirty-three books complete, and ten others incomplete. It is accompanied by a Latin translation, said to be rather a hasty performance. Reitz, in 1752, added four books (49-52), following those of Hervetus; but both editions together only contain thirty-six books complete, and seven with considerable lacunæ in them. Cujacius undoubtedly possessed the Greek text of Book 53 - 59 inclusive; and the MS. is possibly still extant, or it must have been lost a long time ago. [See CUJACIUS.] A new edition is now (1835) in the course of publication, at Leipzig, by Professor Heimbach of Jena, in which are comprehended the various readings obtained by the collation of several manuscripts not examined by Fabrot.

BASI'LICA, from the Greek βασιλική, literally signifies a royal residence: but we have no account of any royal residence being specially called by that name; nor have we any description of Greek edifices called Basilicæ, which may be supposed to have furnished the model of the Roman Basilica. The name, indeed, is Greek, and it is highly probable that the building itself was framed on a Greek model, though the fact does not appear to be capable of direct proof. The building at Athens, called the Βασίλειος Στοά, or Royal Portico, seems to have been pretty much like a Roman Basilica, as to the purposes for which it was used. This edifice, which is mentioned by Demosthenes (*Against Aristogeiton*, chap. 6), contained the court of the Archon Basileus [see ARCHON]; and the Areopagus occasionally held their sittings there. (See also Pausanias, i. 3.)

The Romans gave the name of Basilicæ to those public buildings with spacious halls, often surrounded with wide porticoes, many of which were built at different times, in the various Fora of Rome. They were usually called after the person who caused them to be built, as the Basilica

Æmiliana, Porcia, &c. (Livy, xxxix. 44.) At the time of the conflagration recorded in Livy (xxvi. 27), B.C. 210, there were no Basilicæ then built. We read in the *Bellum Alexandrinum* (cap. 52) that the Basilica was used in the Spanish provinces at the date (B.C. 47) to which that work refers.





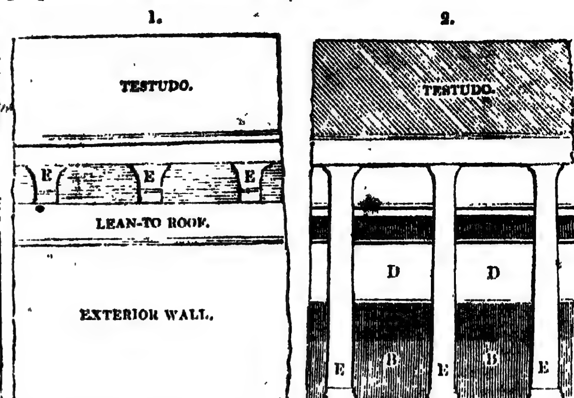
[Copper Coin of Trajan, from the British Museum, representing on the reverse the façade of the Basilica Ulpia.]

The principal feature of the Basilica was a large roofed building, supported on columns. The roof, which was called the *testudo*, rose high above the other part of the structure, which consisted of two galleries, called *porticus*, placed one above the other, and round the internal sides of the central building. The porticus was covered with a lean-to roof, the upper part of which commenced below the capitals of the columns which supported the testudo. The light was admitted between the spaces formed by the under line of the architrave of the testudo, the upper line of the lean-to roof, and the perpendicular lines of the columns. At the end of the central part of the interior a raised platform formed the tribunal for a magistrate. The term testudo, as its name implies, is strictly the roof of the central part; but the term is also extended to signify the whole of the central space, which corresponds to what we call the nave of a church: the porticoes correspond to the aisles.

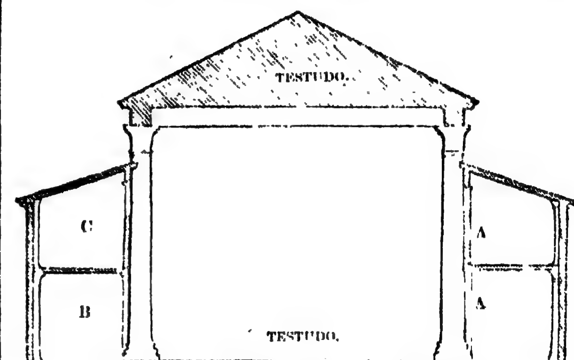
The Basilica was not only used as a hall for the administration of justice, but afforded also convenient shelter to the merchants who transacted business there. Vitruvius, who constructed a Basilica at the Julian colony at Fanum, informs us that it ought to be built 'on the warmest side of the forum, that those whose affairs called them there might confer together without being incommoded by the weather.' 'The breadth,' he says, 'is not to be made less than the third, nor more than half, the length, unless the nature of the place opposes the proportion, and obliges the symmetry to be different; but if the Basilica has too much length, chalcidica are made at the ends [see CHALCIDICUM], as in the Basilica of Julia Aquiliana.' (Newton's *Translation*.)

The size and proportions of these edifices varied according to circumstances. The following proportions are given by Vitruvius for the various parts of this structure. The columns of the Basilica (by which Vitruvius means the columns engaged in the wall) are to be made as high as the porticus is broad; the porticus is to be as wide as the third part of the space in the middle. The columns of the upper gallery must be one-fourth less than the lower. The pluteum (continued pedestal) must be made one-fourth less in height than the upper columns, and be placed between the upper and lower columns, that those who walk above may not be seen by the merchants: from which circumstance it would appear that the upper gallery was intended for a purpose distinct from the uses of the lower gallery. It is probable that in the upper gallery some kinds of handicraft were carried on.

The dimensions of the Basilica built by Vitruvius at Fanum were as follow:—The testudo 120 Roman feet long, and 60 broad; the porticus between the walls and columns of the testudo, 20 feet broad; the height of the columns of the testudo, including their capitals, 50 feet, and the diameter 5. Behind these were parastaticæ, or small piers, 20 feet high, 2½ feet broad, and 1½ foot thick, to sustain the beams intended to bear the floor of the gallery. Over these were other parastaticæ, 18 feet high, 2 feet broad, and 1 foot thick, which supported the lean-to roofs. The remaining space between the beams which were laid over the upper parastaticæ, and the architrave of the columns of the testudo, was open to the light. In the Basilica at Fanum, the testudo was supported by eighteen columns, four at each end, six on one side and four on the other, the two centre columns being omitted on this side, that the view of the pronaos of a temple to Augustus might be seen. The tribunal in this building was in the form of a curved recess, 46 feet wide, and 15 feet deep. To this information Vitruvius adds the proportions of the timbers of the roof.



1. Elevation of part of the Basilica, showing the columns of the Testudo above the lean-to roof of the Porticus.
2. Longitudinal section through the Testudo. D, D, Pluteum; E, E, Columns of the Testudo.

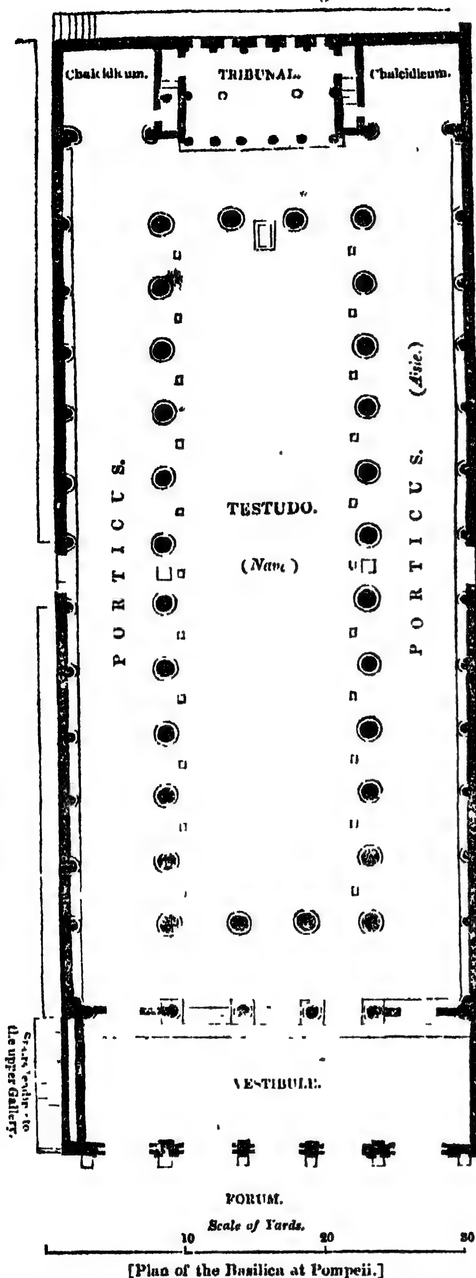


B, Lower Portico; C, Upper ditto; A, A, Parastaticæ.
(Drawn according to the dimensions given by Vitruvius.)

It is probable that Rome possessed Basilicæ in all the different Fora of the city. Of these the Basilica of Trajan, which formed a part of the Forum Trajanum [see FORUM], is the only one of which there are considerable remains left; it is represented on the reverse of the medal which we have given above. Another Basilica, of the Corinthian order, was discovered on the Palatine Hill. A large edifice in the Forum, called the Temple of Peace, has also been named the Basilica of Constantine.

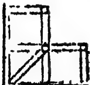
The Emperors Gordian, in their magnificent country residences built on the Via Prænestina, had three Basilicæ, 100 feet in length. Two famous Basilicæ, Æmilia and Fulvia, were built at Præneste (*Palestrina*), between which Sylla caused a magnificent sun-dial to be placed. The marble fragments of the plan of Rome, now preserved in the Capitol at Rome, which was made during the reign of Septimius Severus, show a part of the Basilica Æmiliana; from which it appears that, unlike the other Basilicæ, it had no external wall. In this last respect, it may be compared to a very antient Greek edifice at Pæstum, which has been generally considered a Basilica. This building is an inclosure of columns, without any internal or external walls, and divided in the centre by an order of columns, with another above it. A Basilica which was discovered some years since at Otricoli, had a curvilinear recess or hemicycle adorned with statues, which were removed to the museum of the Vatican.

The most perfect Basilica of antiquity, and which best corresponds with the building described by Vitruvius, exists in Pompeii, constructed on the south-west, and consequently the warm side of the Forum. This edifice is 220 feet by 80. The testudo rose to the height of about 60 feet, judging from the diameter of the portions of the columns still remaining. These columns are twenty-eight in number, four of which are placed at each end, and the rest on each side of the testudo; they are curiously constructed of brick, and covered with stucco. At the farthest end is the tribunal, raised on a platform, to which the ascent on each



[Plan of the Basilica at Pompeii.]

side is by a flight of stairs. Under the platform are rooms, conjectured to have been used as temporary prisons for criminals; and in the floor of this platform are circular holes, communicating with the rooms below. On each side of the tribunal are two small square rooms, which, as the Basilica is very long in its proportion, may be considered a part cut off to form Chalcidica. Small engaged columns are attached to the walls inclosing the porticus, on which one end of the beams of the floor were placed, the other being either inserted in the shafts of the brick-columns, or supported on wooden parastaticæ set against their backs, in the manner described by Vitruvius. In the angles the small columns are clustered thus ⊃, after the manner of Gothic shafts. This arose probably from the circumstance of the beams of the floor of the upper porticus being placed diagonally at the angles, in this manner—



and it is most likely that the under side of the floor was left exposed, as is still the case in the dwellings of Italy, and not covered with lath and plaster, as is the custom in England. The columns being clustered in the angles gave an appearance of strength.

The light, most probably, was admitted in the manner mentioned by Vitruvius; but, in addition, there were windows at the back of the tribunal, which perhaps were at one time glazed, as glass for windows was in common use at Pompeii. The stone door-jambs are remarkable for a large groove, in which we may conjecture that the wooden door frames were fixed. The doors appear to have folded, as the marks left on the sill, from the opening and shutting, still remain. The order of the small engaged columns is Corinthian, and the style very similar to that of the Temple of Vesta at Tivoli, and, like that edifice, this Basilica was covered with a fine marble stucco. The most singular decoration is observed in the rusticated plastering of the interior, where the rustics are painted in every variety of colour. The order of the testudo is unknown, as there are no remains of the capitals. It is probable that the columns, from their height, were never covered with the ashes of Vesuvius, which circumstance enabled the inhabitants to remove them.

The early Christian churches of Rome may be considered as the best resemblances of the Roman Basilicæ. In some of them are still found many of the characteristics of the antient Basilicæ. There are twelve churches in Rome called Basilicæ, the oldest of which dates from about the time of Constantine, and is even said to have been built by that emperor. These edifices are S. Pietro, S. Paolo (without the walls), S. Giovanni Laterano, Sta. Croce in Gerusalemme, Sta. Maria in Trastevere, Sta. Prassede, St.' Agnese, Sta. Maria in Cosmedin, Sta. Maria Maggiore, S. Clemente, S. Nereo et Achille, and S. Lorenzo (without the walls).

The Marquess Galiani remarks, that the first churches were looked upon as tribunals in which the bishops, &c., administered penance to the guilty and the Eucharist to the absolved; we may therefore observe, in accounting for the resemblance which the early Christian churches bear to the antient Basilicæ, that nothing could appear at first sight more appropriate than the idea of imitating a tribunal of justice in the construction of the new churches, in which the bishops and priests were to administer a kind of spiritual justice. This remark is well supported by the fact of the bishop's throne being placed in the apsis, or arched recess corresponding to the curved recess or hemicycle, as it was called, of the antient Basilica. It is, however, more probable that the obvious convenience of the Basilicæ led the early Christians to adopt the principles of that form of building, as these edifices were both light and spacious, and better adapted to the ceremonies of the new religion than the temples of the Pagans.

Constantine has the reputation of having founded the first of these Basilicæ, which was built on the site of his own palace of Lateran, on Mount Cœlius. Shortly afterwards he built the Basilica of St. Peter, on the site of the Circus of Nero; and finally commenced a third, that of St. Paul without the walls of Rome. This church was finished fifty years afterwards by Theodosius; who, if we may trust Procopius, built a continuous portico from the city to the Basilica, covered with a copper roof. St. Peter's was decorated with one hundred columns of white marble; it is, however, now replaced by a more modern structure, the largest of the kind in the world. The external part of the Basilica of S. Giovanni Laterano is of modern construction. St. Paul's without the walls was burnt down a few years since, but is now partly restored upon the old plan. The section of this edifice, across the nave, shows the form of the testudo with the inclined roofs of the porticus; and in the spaces between the under side of the roof of the testudo and the upper line of the roof of the porticus, are formed the windows of the church. The nine other Basilicæ, as well as the antient churches of Sta. Maria in Ara Cœli, S. Martino, S. Vincenzio delle Tre Fontane Sta. Maria sopra Minerva, and S. Agostino, and several others possess some of the features of the antient Basilicæ.

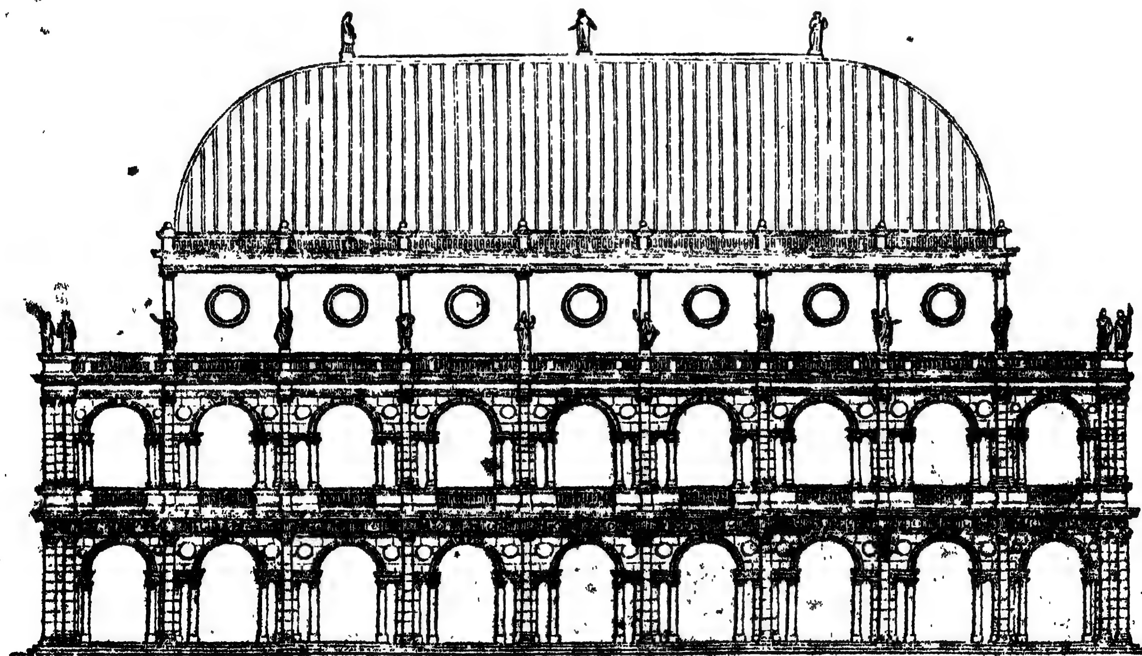
St.' Agnese, however, exemplifies the peculiar character of the antient Basilica in so striking a manner, that we give a representation of it, which will illustrate the description of Vitruvius.

In this view will be easily recognised the galleries (porticus) running round three sides of the building, and interrupted by the recess forming the tribunal. In the upper gallery is the pluteum, or continued pedestal, inclosing the



[Interior View of the Basilica of St.' Agnese at Rome, from a work on Roman Church Basilicæ by I. G. G., Roma, 1823 and 1824.]

same. The nave corresponds to the Testudo; the apsis of the church to the hemicycle of the antient buildings: the only difference is in the manner of piercing the walls for windows, and in the omission of the large columns of the testudo, the two orders of columns standing in the places of the antient parastaticæ. It is probable that the construction of the roof of the antient Basilica was exposed, as it is shown here, and as was the invariable practice in almost all the church Basilicæ of Rome. These Basilicæ are built from the old materials of other edifices, and the parts are put together without much regard to symmetry, so that there are often Ionic, Corinthian, and Composite capitals, placed on shafts of columns of various diameters, with portions of entablatures above them, which originally belonged to dissimilar edifices. Santa Maria in Trastevere is an example of these incongruities: here also the throne in the apsis has an antique form, very similar to the hemicycles of the Street of Tombs at Pompeii. The Roman church Ba-



[Elevation of the Basilica at Vicenza, built by Palladio.]

silicæ are remarkable for their mosaic [see MOSAIC] decorations The pavements of many of them are enriched with the most elaborate patterns made of the hardest marbles. The arched head of the apsis is often decorated with the figures of saints or apostles upon a gold ground, the whole mosaic being formed of glass tesseræ; but the most sumptuous mosaics are those of St. Peter's, of modern execution, which represent so truly the great works of the best Italian painters, that none but a practised eye can detect the difference.

Not only the apsis, but the general form of the nave and aisles, of our antient cathedrals is evidently borrowed from the Italian church Basilica. The same is also true of the old village churches of England. The nave corresponds to the testudo, and the side aisles to the porticus; the windows of the nave, which externally are seen above the lean-to roof of the aisles, correspond to the opening between the upper part of the columns of the testudo.

Modern Basilicæ exist at the present day in Italy, applied, as the antient were, to civil purposes. Palladio gives the name of Basilicæ to such public buildings, many of which are found in the Italian towns. Part of the Basilicæ of the present day serve as the palaces of the magistrates, and in them they administer justice, while the lower parts are occupied by merchants, &c. Speaking of these edifices, Palladio says, 'Our modern basilicæ differ from the antient in this, that while theirs were on the ground floor, ours are elevated on arches, and the parts beneath the arches are used as shops, prisons, and for other public purposes. Another difference is that the antients had porticoes only in the interior; the moderns, on the contrary, either have none, or have them on the exterior.' There is an example of such a Basilica at Padua, and another at Brescia; but the most celebrated is that at Vicenza, the exterior of which is after the design of Palladio. The body of the building is supposed by Vincenzio Scamozzi to have been erected during the reign, and by the command, of Theodoric the Goth. This Basilica is 162 feet long by 63 wide; the curved roof is of wood, covered with lead; the great hall is 25 feet 10 inches above the ground-floor, and is supported on piers. This edifice, which reflects great credit on the skill of Palladio, is called at Vicenza 'Il Palazzo della Ragione.' The architect himself, though a modest man, was so well satisfied with his own performance, that he expressed an opinion that this construction was equal to any Basilica of antiquity.

In England the town-hall, and in France the Palais de Justice, correspond, in some respects, to the modern Italian Basilicæ.

In modern structures, the form of the Basilica might be applied to markets, for which purpose it is well adapted, both for convenience and ventilation. Liverpool market, which is, perhaps, in these respects, the most perfect in the world, consists of several roofs placed side by side, resembling in some degree the roof of the testudo.

(Vitruvius; Nardini's *Rome; Nolli's Plan of Rome, with the Fragments of the Ancient Plan; A Series of Geometrical Plans and Sections, and Perspective Views of the Roman Church Basilicæ*, by I. G. G., Roma, 1823-24; Eustace's *Class. Tour; Plan of Pompeii*, by the Society for the Diffusion of Useful Knowledge; Marquess Galiani's *Translation of Vitruvius; Life of Palladio*, by M. Quatremère de Quincy; *Encyclopédie Méthodique, Architecture; Notizie sulla Antichita e Belle Arti.* Roma.)

BASILICA'TA, one of the fifteen provinces of the continental part of the kingdom of the Two Sicilies. It lies south of the Terra di Bari and Capitanata, east of the two Principati, and north of Calabria. It occupies the greater part of the antient Lucania, the remainder of which is included in the province of Principato Citra. Basilicata lies almost wholly on the eastern side of the main ridge of the Apennines, and its rivers flow into the Gulf of Taranto, or the Ionian Sea, as the Italians call it. The main ridge, or backbone of the Apennines, running in a south-east direction through the province of Principato Ultra, forms a large mass above Conza, between the sources of the Ofanto on one side, and those of the Sele on the other. One of the summits of this mass is called Monte Lucano. Having thrown off two lateral branches, one to the eastward towards the peninsula of Otranto, and another westward towards Cape Campanella, the main ridge then enters Basilicata north of the town of Muro, bending almost due east, and giving rise to the Bradano on its eastern, and the Fiume Bianco on its south-western slope. South of the sources of the Bradano, it sends off another branch due east dividing the waters of the Bradano from those of the Basiento. In this projection is the high summit called Monte Acuto, and on its southern slope are the sources of the Basiento and the town of Potenza. From this point the main ridge runs due south by Marsio Nuovo, between the sources of the Agri, which flows eastward, and those of the river Negro, or Tanagro, which is one of the tributaries of the Sele. It then approaches very near the coast of the Mediterranean Sea, near Lagonegro, above which is the lofty group called Monti Sirini, on the eastern slope of which the Siris, now called Sinno, has its source. Farther south the ridge enters Calabria east of Castelluccia and Rotonda, above which towns it forms the lofty summit called Monte Pollino (Mons Apollineus), which is the highest point in the southern part of the kingdom, being above 7000 feet. A small part of the province of Basilicata lies west of the central ridge, and between it and the Gulf of Policastro, extending about 12 miles along its coast, between Sapri and the river Trecchina. The maritime town of Maratea, and the inland towns of Lagonegro and Lauria, the two last on the high road from Naples to Calabria, belong to this district of Basilicata. Farther north another slip of Basilicata lies also on the western slope of the Apennines, round the town of Muro a place known in history for the tragical death of Queen Joanna I. But the great bulk of the province lies east of the main ridge, and between it and the Gulf of Taranto. Four rivers (Bradano, Basiento, Agri, and Sinno) run through it from west to east, forming as many long valleys, bounded by offsets from the main chain of the Apennines. These offsets slope down gradually towards the sea, until they sink into a low plain at the distance of about 10 miles from the coast. These were the plains of Metapontum and Heraclea, renowned in former times for their fertility, but now in great measure uninhabited and unwholesome. Proceeding from Taranto along the coast, and turning towards the south, the traveller crosses the river Bradano, and enters Basilicata. On the right bank of the Bradano, and between it and the Basiento, which rivers are only four miles distant from each other, is a square tower called Torre di Mare, built by the Angevine kings as a station for coast guards. The sea, however, has receded all along this coast, owing to the alluvia carried down by the rivers, so that Torre di Mare is now about a mile distant from the shore. Two miles inland from Torre di Mare are the remains of a Doric temple, the plan and style of which appear to have been similar to those of the temples of Pæstum. Part only of the two sides remains, consisting of two rows of pillars of sandstone, ten in one row and five in the other, the rows being about 42 feet asunder. The pillars are 3½ feet in diameter, 16 feet in height, and 8 feet distant from each other. They are fluted and tapering, with a large cyathiform capital, resembling in shape a shallow bowl covered with a thin square stone. They have no base, but they rest upon a kind of plinth which belonged to the whole row, the intermediate parts of which between the columns have been carried away. The rows are in the direction east to west. The columns consist of seven blocks each, including the capital. Part of the architrave is all that remains of the entablature. St. Non's *Voyage Pittoresque* gives the above dimensions and also two views of the temple. It describes the temple as being two miles inland from Torre di Mare, in the direction of the town of Bernalda, on a rising ground in the middle of a vast plain, and almost at an equal distance between the Bradano and the Basiento. Swinburne, who also saw the temple, inaccurately describes it as close to the mouth of the Basiento, and Keppel Craven, in 1818, accordingly looked for it near the banks of that river and could not find it; but on his return to Naples he was informed that the temple remains nearly in the same state as when Swinburne saw it, and that it lies about four miles from the sea, near the right bank of the Bradano, consequently inland from the road and not between the road and the sea, an indication corresponding pretty nearly to that which is given in the *Voyage Pittoresque*, as Torre di Mare itself is a mile from the sea-shore. Returning from the temple towards Torre di Mare, and about a mile from the latter place, the authors of the *Voyage* saw, among the high corn with which the plain was covered, the remains of another temple, of which some massive blocks lay on the ground, as well as the foundations of other buildings, and a hillock formed of bricks and broken pottery: they suppose this to have been the site of the antient Me-

pontum, and that the temple now standing was outside of the town. The town of Bernalda, which is six miles from Torredi Mare, in the interior, is chiefly built of old materials carried away from the ruins of Metapontum. Corn is still the chief produce of this plain, and it formerly constituted the great source of wealth of the people of Metapontum, whose medals bear the wheat-sheaf as a mark of the fertility of the country.

Proceeding farther south, the traveller crosses the Basiento, the antient Casuentus, by a ferry in winter, and at a ford in summer, about three miles from the sea. Passing through a wide plain (large tracts of which are planted with liquorice, and others sown with corn, and in which two small villages, San Teodoro and San Basile, are the only habitations), he arrives at another tower called Scanzano, on the river Salandrella, once a feudal estate belonging to the Princes of Castellaneta. Between the Salandrella and the Agri, the next river to the south, the ground becomes uneven, and is partly planted with olives, and partly covered with underwood. The Agri, the antient Aciris, rises in the central ridge near Marsico Vetere, about 60 miles from the sea. It is a considerable river, and the only one in Basilicata on which a ferry is kept in summer. Between the Agri and the Sinno, which is the next river to the south, lies Policoro, a large house and farm, once belonging to the Jesuits, and now to the Prince of Gerace. The estate occupies the whole space between the two rivers, about four miles in length, and from the sea to the hills inland, which is nearly an equal distance. Above the hills, the higher mountains of interior Basilicata are seen, with the towns of Tursi, Pisticci, and Montalbano, built upon them. Montalbano is ten miles from Policoro, and has about 6000 inhabitants. The estate of Policoro is well cultivated, and produces every variety of corn, vegetables, and fruit, besides pasture for large herds of cattle. The principal revenue, however, arises from the oil and liquorice, a manufactory being established on the estate for the preparation of the latter drug. The country abounds with game of every sort, from the rabbit to the deer and wild boar. In the winter months, about 1000 persons are employed on the estate, but only 150 are permanently on the establishment. Heraclea stood hereabouts, but the precise spot is not known. A few stones, fragments of statues, medals, and also earthen vases, have been found about a mile from Policoro.

The port of Siris was probably at the mouth of the Sinno, where there is now an open road frequented by vessels, which take in cargoes of corn, liquorice, and other produce of the country. In 1753, two bronze tables, with inscriptions, were found about eight miles above Policoro, on the northern bank of the Agri, near the town of Pisticci, which are known by the name of the Heraclean tables. They are now in the Museum of the Studj at Naples. South of the Sinno, the mountains close upon the sea coast. Four miles south of the Sinno is Rocca Imperiale, the last town of Basilicata, built on a conical hill, which it crowns to the very summit, after the fashion of the Calabrian towns. Six miles beyond is Roseto, the first town or village of Calabria Citra. The whole coast of Basilicata, from the Bradano to Rocca Imperiale, is about 24 miles.

The interior of Basilicata is mountainous and wild. A road branches out of the high road from Naples to Calabria at Auletta, and crossing the Apennine ridge leads to Potenza, which is the capital of Basilicata. It is a town of about 10,000 inhabitants, a bishop's see, the residence of the intendente, or governor, of the province, and the seat of the civil and criminal courts of justice. It contains also the royal college of the province. Many Roman inscriptions have been found at Potenza. (Gatta, *Lucania*.) A road, the only one that crosses Basilicata from east to west, leads from Potenza, through the town of Tricarico, to Matera, a distance of about 50 miles through a mountainous country. Matera is a considerable town, near the left bank of the Bradano, and about 20 miles above its entrance into the Gulf of Taranto. It is an archbishop's see, and was formerly the residence of the governor of the province. The other towns of the interior are Oppido, Acerenza, and Montepeloso, which are near the banks of the Bradano, and south of the lateral ridge of Apennines above-mentioned, which runs westward towards the Terra d'Otranto. A part of Basilicata, however, stretches beyond and to the north of this ridge, extending to the banks of the Ofanto, and into the great plain of Puglia. In this division are the towns of Rapolla, Melfi, Atella, Lavello, and Venosa. This district is very fertile in corn. A road leads across the mountains from Potenza through Avigliano to Melfi. Melfi was one of the first places which the Normans became possessed of in Apulia.

In the southern part of interior Basilicata there are no towns of any importance: some villages thinly scattered about the valleys were formerly baronial fiefs, the titles of which are still borne by Neapolitan families; such are Stigliano, Laurenzana, Salandra, Francavilla, Marsico Vetere, &c.

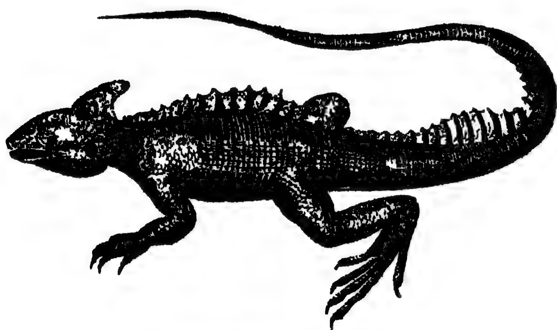
Basilicata extends nearly 80 miles in length, from N. to S., from the right bank of the Ofanto, near Melfi, to the mouth of the river Trecchina on the Gulf of Policastro. Its breadth from E. to W. varies considerably; in its widest part it is about 60 miles, between the mouth of the Bradano and the frontiers of Principato Citra, near Marsico Novo. Swinburne states the surface of the province to be 1,605,000 Neapolitan *moggie*, a measure about one-eighth less than the English acre. He states the population as being then 325,000, and it is not likely to have increased much since his time, as Basilicata is one of the provinces of the kingdom in which the least progress in agriculture, industry, or commerce has been made. Serristori, in his *Saggio Statistico dell' Italia*, states the population at 452,000; but another, and a more accurate statistical writer, Afan di Rivera, a Neapolitan colonel of engineers, states, that by drawing a line from Montepeloso near Matera in the north, and carrying it through the centre of the province southward to Francavilla, on the borders of Calabria, the whole population found to the east of this line and between it and the sea, including the valleys of the Bradano, Basiento, Agri, and Sinno, is about 117,000 inhabitants, divided among 33 communes, and spread over a surface of 1200 square miles. This extent includes more than one-third of the province, and the most fertile part of it. The districts of Melfi, Lavello, and Venosa, near the banks of the Ofanto, he calculates to contain about 70,000 inhabitants. The small district west of the Apennines, which borders on the Gulf of Policastro, with the towns of Maratea, Lauria (4000 inhabitants), and Lagonegro, contains, perhaps, 20,000 more. There remains the midland mountainous division of the country, which, with the exception of the district of Potenza, the town of Tricarico, the district of Muro, and one or two other places, is nearly uninhabited, without any roads, and covered with forests. From all this it appears probable that the whole population of the province does not exceed 300,000, if it reaches that number.

The origin of the name of Basilicata is not well ascertained, though it is believed to have been given to this province by Basilius II., emperor of Constantinople, who reconquered it from the Saracens and the Longobards at the beginning of the eleventh century. (Gatta, *Memorie Istoriche della Lucania*; Swinburne's *Two Sicilies*; Keppel Craven's *Tour through the Southern Provinces of the Kingdom of Naples*; Afan di Rivera, *Considerazioni sul Regno delle due Sicilie*.)

BA'SILISK (*Basiliscus* Daudin), in zoology, a genus of Saurian reptiles, belonging to the Iguanian family. It is to be observed that the basilisk of modern erpetology is a very different animal from the basilisk (βασιλίσκος) or royal serpent of antiquity, the *Tsepha* or *Tsiphoni* of the Hebrews, which is translated *cockatrice* in our English version of the sacred Scriptures, and which was formerly the subject of so many fabulous narrations. The principal circumstances connected with the history of the fabulous basilisk, and of the different occasions upon which it has been mentioned or alluded to in the Scriptures, will be noticed under the head of COCKATRICE, to which they more properly belong than to the present article. For the present we shall confine our attention solely to the basilisks of modern zoologists, and of which, being an American genus (at least its most authentic species), the antients could have had no knowledge.

The basilisks are distinguished from other genera of the Iguanian reptiles by the absence of the lax and dilatable skin under the throat, by the want of thigh pores, and still more particularly by the elevated crest or fin which, like the dorsals of some fishes, runs along the whole length of the back and tail, and is supported by the spinous processes of the dorsal and caudal vertebræ. These processes are largely developed in most of the family, and in the guanas more particularly project far beyond the skin of the back, like the dorsal spines of acanthopterygious fishes, and form an uninterrupted range from the occiput to the origin of the tail; but they are not connected by a membrane as in the basi-

lisks, and consequently are not of the same importance as a zoological character in influencing the aquatic habits of the animals. In other respects the basilisks are of a thick and elongated form, and have the whole outer surface of the body, as well as the head, neck, tail, and extremities, covered with small scales, of a rhomboidal form, and, generally speaking, slightly carinated. The head is short and thick, particularly towards the occiput, the nose blunt, and the tongue large, thick, flat, rounded at the point, not extensible, and attached below to the under-jaw throughout the greater part of its length; the tail is long, very much compressed on the sides, and surmounted, at least on the half next the origin, with a high vertical fin, covered with small scales like those of the body, and capable of being erected or depressed at the will of the animal. The legs are long, and the feet provided with five toes each, which are long, separate, and furnished with small claws. To the occiput is attached a membranous bag, which the basilisk has the power of distending with air, or emptying, as its occasions require, and which appears to supply in this genus the absence of the dilatable skin on the throat, with which nature has furnished the guanas, either as a reservoir to contain a quantity of fresh air to supply their necessities while diving, or by enlarging their magnitude without adding to their weight, to assist them in the actions of swimming and in keeping the head above water, or perhaps for both these purposes. In the particular case of the basilisks, their aquatic habits are still more powerfully increased by the vertical fin of the back, which, like that on the tail, is capable of being erected or depressed at the will of the animal, and consequently, whilst it does not impede its motions on the dry land, greatly facilitates its power of swimming and moving about in the water. In short, these animals may be said to carry about with them a portable swimming apparatus, which is of the utmost service to them as aquatic animals, without encumbering them at other times, a beautiful provision of nature to supply the deficiency of palmated, or webbed feet, which, as in the case of all other palmated animals, would have reduced the progression of the basilisks on land to a slow and awkward gait, and rendered it altogether impossible for them to ascend trees or move securely among their branches. Yet their whole organic structure, the length of their limbs, and the division and flexibility of their toes, all announce the rapidity of movement and arboreal habits of these animals, in which are united, by the most simple means, functions and habits the most directly opposed to one another. The genus *Ophryessa* of authors exhibits much of the same structure, though perhaps not quite so strongly developed, nor is it easy to conceive any just grounds for separating these animals from the basilisks. Two species only are usually referred to this genus.



[Hooded Basilisk. B. mitratus.]

1. The *Hooded Basilisk* (*B. mitratus*, Daudin) measures seven or eight inches from the nose to the origin of the tail, which is itself nearly twice as long again, being nineteen or twenty inches in length. This animal is easily recognised by the generic characters already described, and more especially by the bag or hood of the occiput, which may be said to be in a manner peculiar to it, since it is but slightly indicated in the other species; this bag, when distended with air, is about the size of a pullet's egg. The general colour is a mixture of vinous and sandy brown, slightly marbled on the back and sides with different shades of blue, and silvery-white on the belly. Transverse bands of a deep-brown colour, but broken and irregular, pass down the sides from the dorsal fin to the flanks; two small whitish bands pass over the eyes and from the corners of the mouth, and are prolonged upon the sides of the neck, and the tail is so remarkably attenuated towards the extremity, as to show the articulations of the vertebræ beneath. Seba, who first described this animal, besides identifying with it all the ridiculous stories which had been circulated during the middle ages concerning the fabulous basilisk or cockatrice, has encumbered its history with various speculations of his own, which, if not equally absurd, are to the full as injurious in a zoological point of view. He calls it, for instance, a flying dragon, and pretends that its dorsal and caudal fins support it through the air in the act of flying, a faculty which is quite as foreign to the basilisk as it is to a trout or perch, which he says it resembles in the form of its fins: it is odd enough that this similarity of form did not suggest to him a similarity of function likewise, which would have been much nearer the truth than the strange hypothesis he has adopted. This species inhabits Guiana and the tropical parts of South America generally: its habits have been sufficiently noticed in speaking of the general characters of the genus.

2. The *Crested Basilisk* (*B. Amboinensis*, Daudin), a large species, upwards of three feet in length, is of a green colour, marked with white lines on the head and neck, brown on the back and tail, and silvery-white on the belly, irregularly dotted with numerous white points. This species, as its scientific name imports, is an inhabitant of Amboyna and the islands of the Indian Archipelago generally. It keeps in the vicinity of rivers and fresh-water ponds, where it loves to bask on the branches of the trees which overhang the stream. On the first appearance of danger it drops into the water, and conceals itself beneath some rock or stone, whence it may be taken with the naked hand, or with a noose, for it is a stupid and timid animal. It is caught for the sake of its flesh, which is white and as tender as chicken: in taste it is said to resemble venison. The female deposits her eggs in the sand, and leaves them to be hatched by the sun, paying no attention afterwards to her young progeny.

BASILIUS (Βασίλειος), the Macedonian, Emperor of Constantinople, was born of poor parents in a village of Macedonia, towards the beginning of the ninth century. When twenty five years of age he proceeded to Constantinople to seek for better fortune. He there found a friend in the superior of a monastery where he had applied for shelter, who introduced him to the service of an officer of the court of the Emperor Michael III. Having become known to that sovereign, he gained his favour, and became his chamberlain in 861. He soon after took a wife, who was a concubine of Michael. The patrician Bardas, a relation of the emperor, became jealous of Basilius, and the Macedonian adventurer, fearing his machinations, anticipated him by accusing him of conspiring against the emperor. Bardas having exculpated himself, Michael and Basilius swore before the patriarch on the sacrament, that they would not attempt anything against him. Soon after, while the two rivals were accompanying Michael on an expedition, Basilius assassinated Bardas in the emperor's tent, and was made by Michael his colleague in the empire, A.D. 866. Michael rendering himself odious by his cruelty and debauchery, Basilius remonstrated with him, but he only irritated the emperor, who attempted to depose his colleague. But Basilius anticipated the emperor's design: he formed a plot with some other officers of the palace, and when the emperor one evening retired to his room in a state of intoxication, they murdered him in his bed, A.D. 867.

Basilius was now proclaimed emperor; and his conduct on the throne which he had obtained through crime was wise and equitable. He re-established order in the empire, enforced the strict administration of justice, corrected the abuses that had crept into every branch of the administration under the profligate reign of Michael, and began the compilation of a code of laws which was completed by his son and successor Leo, but has retained the name of Basilica. He dismissed the intriguing Photius, who had usurped the patriarchate, and re-established the patriarch Ignatius in the exercise of his functions. He assembled a general council at Constantinople in 869, to which Pope Adrian II. sent his legates, and in which Photius was condemned, and a temporary reconciliation between the eastern and the western churches effected. Basilius carried on the war in Apulia against the Saracens, at first as an ally of

the Emperor Ludovicus II, but he afterwards quarrelled with him and withdrew his troops. He was more successful against the Saracens in Asia, recovered the greater part of Asia Minor, and carried the arms of the empire beyond the Euphrates in 872, where they had not been seen for a long time. He defeated the Paulicians, a sect that had established itself in Pontus, and had been for many years in a state of revolt against the empire. Basilius entered into a treaty of friendship with the Russians of Kiew and sent them an archbishop, who converted many of that nation to Christianity, and from that time the Russians began to acknowledge the authority of the Greek Church. At the end of 877, Ignatius died, and Photius being restored by Basilius to the patriarchal see, fresh dissensions soon after broke out between the Greek and the Roman Churches. In 880 the Greeks lost Syracuse, which was taken by the Saracens after a long siege. Basilius died in 886 of a blow which he received from a stag while hunting. He left a book of advice (Κεφαλαια παραινετικα) addressed to his son Leo, which is divided into sixty-six short chapters, containing many good maxims for his conduct. It has been published under the title of *Basilii Imperatoris Exhortationum Capita LXVI ad Leonem filium cognomento philosophum*, Paris, 1584, 4to, by F Morel and also at Gottingen, 12mo, 1674, by Just Von Dransfeld. Another work by Basilius also addressed to Leo (Ἑτερα παραινεσις εις τον αυτοῦ υιον Λεοντα Βασιλεα) was lately published by A. Mai in vol ii of his *Vatican Collections*, pp 679-681.

BASILI'US II was the son of the Emperor Romanus the younger. Upon the death of Romanus in 963 the crown was usurped by Phocas, who, six years after, was put to death by John Zimisces. Zimisces took the crown for himself, but acknowledged, as his successors, Basilius, and his younger brother Constantine, who were then minors. When Zimisces died in 975, the two brothers were proclaimed emperors under the guardianship of the eunuch Basilius. The empire was disturbed for several years by the revolts of Bardas Sclerus in Asia, and afterwards of Bardas Phocas, who had been sent from Constantinople against Sclerus. Phocas, however, died in 989, and Sclerus implored the pardon of Basilius, who forgave him. The whole reign of Basilius was one continual warfare against the Saracens, the Bulgarians, the Sclavonians, the Emperor Otho III, and the Longobard Dukes of Benevento. The war against the Bulgarians was the most obstinate. It began in 981, and lasted till 1014, when Basilius defeated Samuel, King of the Bulgarians, and ravaged the country round Philippopolis. Being embarrassed in his march by 15,000 prisoners whom he had made, Basilius divided them into companies of 100 each, and then caused their eyes to be pulled out, excepting only one man in each company who was to show his companions the way. In this manner they returned to King Samuel, who was so horrified at the sight that he fell into a swoon and died two days after. The history of the Greek Empire is almost all through a history of horrors. In 1019 Basilius had subdued the whole country of the Bulgarians as far as the Danube. In 1022 he went to make war against the King of Iberia, the modern Georgia, and defeated him. Wlodimir, Grand Duke of the Russians, married Basilius's sister, after having received baptism in 988, and abolished paganism throughout his dominions. Basilius died in 1025, after a reign of fifty years. His brother Constantine, who was nominally his colleague, but had no power during his brother's life, succeeded him as sole emperor after his death. Basilius was a great and successful warrior, but inhuman, rapacious, and tyrannical. He loaded his subjects with taxes, and left his coffers filled with gold.

BASIN (*bassin*, French; *fluss gebiet*, *meer-gebiet*, *see gebiet*, German; *bacino*, Italian), is a term recently introduced into geographical description. It may be applied to any collection of water, as seas, lakes, and rivers, and comprehends, in every case, all the countries which are drained by the waters which run into such sea, lake, or river.

It is instructive and useful to trace the boundaries of the basin of a sea. If they run far inland, and comprehend a great extent of country, the basin commonly contains large and fertile plains, maintains a numerous population, and has in some period of history made considerable progress in civilization. The Bay of Bengal may serve as an instance. The boundary of its basin runs from Cape Comorin along the western coast of the peninsula within the Ganges up to 20° N. lat., to the north of which it suddenly turns to the east, and advancing from 74° E long. to 82°, encircles the countries drained by the rivers Tapty and Nerbudda, but at the source of the latter river it again turns to the west, and running along its northern banks returns to the 74th meridian under the parallel of 24½°. Afterwards it follows the range of the Aravulli Mountains, and joins the Himalaya by the elevated plain which extends between the Sutledge and Jumna, where those rivers issue from the Himalaya range. The Himalaya forms the boundary to its farthest extremity at the source of the Brahmapootra, including the northern region traversed by the Tsampoo and the boundary advances still farther to the east into the unknown region where the rivers Irawaddy and Saluen rise. Along the eastern bank of the latter river it runs south to its mouth, and then along the high lands of the peninsula of Malacca, at the southern extremity of which it terminates opposite the island of Singapore. Thus the basin of the Bay of Bengal comprehends countries not much less than half of Europe in extent. Accordingly we find, not only that it is, and ever has been, much frequented by vessels, but also that at a very early period civilization made considerable progress, and that at all times the arts of peace have been greatly cultivated within the limits of this basin. No other similar portion of the ocean has so large a basin as the Bay of Bengal, except the Whang Hai, or Yellow Sea, between the peninsula of Corea and Northern China, which, though considerably narrower, and not exceeding one fourth of the Bay of Bengal, is the receptacle of two of the greatest rivers of the globe, the Hoang ho and Yan tse kiang, the basins of which rivers are at least equal to the whole basin of the Bay of Bengal. The civilization of these countries goes back to a very early epoch, and it is a well-known fact that no country is so thickly peopled as the northern part of China, nor is probably any portion of the ocean traversed by so great a number of trading vessels as the Whang Hai.

On the other hand, if the basin of a sea is of small extent, the surrounding country is poor, its inhabitants backward in civilization, and its ports only occasionally resorted to by vessels. Such is the case with the Arabian Gulf whose basin commonly coincides with its shores and in no place probably extends more than twenty miles inland. It was only navigated to any extent when the trade between Europe and India was carried on through Egypt, and is rarely used by trading vessels since the discovery of the route round the Cape of Good Hope.

The basins of lakes offer likewise several varieties. Those which are commonly called mountain lakes but with more propriety valley-lakes, have in general a very narrow basin, being enclosed on all sides by mountains. Many of them receive a river at one extremity, in which case their basin runs up such river to its source, and thus it happens that mountain lakes have a very long and narrow basin stretching upwards from one extremity of it. This is the case with many of the Scotch lakes and the Lake of Geneva, which receives the Rhone. The lakes of plains have, in general, a much larger basin, as they receive the drainage of a more extensive country, as the lakes of North America and those of Russia. But the lakes which occur in the sterile plains called steppes, and on that account are called lakes of steppes, have frequently very large basins, even more extensive than those of many portions of the ocean. Thus the basin of the Caspian is probably almost as large as that of the Mediterranean, and the basin of the Lake of Aral twice as large as that of the Gulf of Persia. [See LAKE.]

The term basin is still more frequently applied to the drainage of the rivers, especially since the physical description of a country has begun to be considered as the true basis of its geographical description. Much may be said in favour of this innovation. The character of a country, its climate, soil, and productions, frequently change from the basin of one river to that of another, and when in the basin of one river such changes are observed to occur, the formation of the basin commonly presents some point or place where the change begins to be sensible, and may consequently be indicated with some degree of certainty.

The first thing to be considered is the extent and form of a river-basin. It is commonly widest in the middle part of its course, where it receives the most and the largest tributaries. At both extremities towards the source, and towards the mouth, the basin grows narrower. This is the case with the Rhine, the Seine, Loire, Trent, and many other rivers.

But this rule is subject to exceptions. The basin of the Nile is very wide in the upper part of its course, comprehending probably upwards of 15° of long., but in the middle of its course it is so narrow that in most places it only extends to the same number of miles, and frequently still less. The Danube, on the other hand, whose basin grows larger the farther it advances in its course, preserves nearly the same width at its mouth which it attains higher up in its course.

The boundaries of river-basins deserve peculiar attention. The upper parts of the course of large rivers generally lie in very mountainous countries, and here a communication between the different river-basins can only be effected by roads, as is the case with the rivers which descend from the southern and northern declivities of the Alps. Sometimes the whole boundary, or by far the greatest part of a river-basin is formed in this way, and consequently presents great obstacles to inland communication. Of this description are the river-basins in Spain and Portugal. But the middle and the lower part of their course often lie through a plain or country of undulating surface, and in such a region a water communication may be effected by canals. The most extensive system of water communication on the globe is in China, in the plain which extends between the lower courses of the Hoang-Ho and Yan-tse-kiang. When two rivers run through the same plain, nature has sometimes effected a water communication between such river systems by sending a detached branch from one to the other. Such a communication is said to exist between the Menam or river of Siam, and the Maek-haun or river of Camboja; and in Europe, in Northern Sweden, between the Calix-Elf and the Skaleftea-Elf. In these instances, however, the rivers run through the plain in the same direction; but the Cassiquiare in South America is a natural canal which unites two rivers, the Orinoco and the Rio Negro, which indeed run in the same plain, but not in the same direction. The boundaries of the basins of some rivers are entirely, or nearly so, formed by extensive plains, no mountain range intervening between them; the countries in which this takes place, as is the case with many river-basins in Russia, offer peculiar facilities for establishing an extensive communication by canals.

The internal structure of the basin also requires examination. Most rivers traverse a country which rises slowly towards their sources, and the ascent is only rapid in the upper part of their course; but some rivers, after issuing from the mountains which give them origin, traverse, in their course to the sea, plains of different elevation. Thus the Danube traverses three extensive plains, that of Bavaria, of Hungary, and of Bulgaria. The first, in its highest part, rises above 1000 feet, the second about 300, and the third probably only 100 feet or less, above the sea level. These plains are divided from one another by extensive mountain ranges, which intersect the basin of the river, terminating on its banks, narrowing its course, and rendering the navigation difficult and dangerous. Plains of such different elevation above the level of the sea, must, of course, differ materially in productions, soil, and climate. [See DANUBE.]

Whenever a river, with its tributaries, traverses an extensive basin, the surface of this basin in general presents a great variety of geological formations. As the upper branches, in such a case, take their origin at a great distance from the sea, they commonly lie in primitive rocks, but the river gradually descends to rocks of more recent formation, until, on its approach to the shores of the sea, it comes to an alluvial soil, which is partly its own produce and partly that of the sea into which it empties itself. Such is the case with the Rhine. The basin of many little rivers, if a few small tracts of alluvial soil are excepted, presents only one formation, as is the case with many of those which traverse the Highlands of Scotland. It sometimes happens that the bed of a river constitutes the boundary between two different formations, as the Conway in Wales, which divides the primitive rocks of the Snowdon range from the Hiraethog Hills, which are of secondary formation. The bed of a river is, for the most part, the best index to the constituent parts of the basin which it traverses, by laying open to observation the different strata of which the adjacent mountains, hills, and plains are composed.

BASINGSTOKE, a market-town and parish, in the hundred of the same name, in Hampshire, [illegible] miles W.S.W. of London, and 30 N.E. of Southampton. It is situated in a pleasant part of the county, and being at the junction of five roads, one of which is the great western road from London, it has an appearance of much activity and commands considerable trade. Although the adjacent country is surrounded with woods, it is rich in pasture, and many fine houses are dispersed through it. A brook runs by the town, which was formerly mentioned as abounding in trout: this brook (called in the Ordnance Map, No. 12, the Town Brook) rises about one mile and a half west of Basingstoke, and is the main branch of the Loddon, an affluent of the Thames. Basingstoke is mentioned in Domesday Book under the name of *Basingtoches*, and is described as having always been a royal manor which had never paid tax or been distributed into hides, and which had, at the time of the Survey, a market worth thirty shillings. The Saxon addition of Stoke, or hamlet, would imply that, previous to the Conquest, it was of inferior importance to Basing, now called Old Basing, in its neighbourhood, and which is historically remarkable for the long and spirited stand which was made in the castle called Basing House, by the Marquess of Winchester, its owner, against the Parliamentary forces, until Cromwell took it by storm and burnt it to the ground in 1645.

At a short distance west from Basingstoke is an antient encampment: the embankment is about 1100 yards in circumference, but no traces of a ditch are visible: it has two entrances, respectively east and west; its form is that of an irregular oval, approaching to an oblong square.

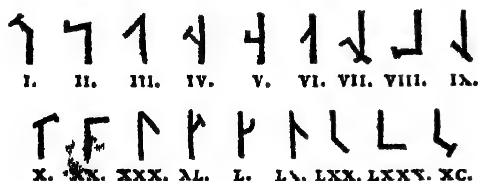
An hospital for the maintenance of aged and impotent priests was founded at Basingstoke by Henry III. at the instance of Walter de Merton, bishop of Rochester and Lord Chancellor in that reign, and it became eventually appropriated to the reception of superannuated fellows and scholars from the prelate's other foundation,—Merton College, at Oxford. It stood on the north side of the brook, a little below the town bridge, and some remains of it might be traced not very long ago. On an eminence at the northern extremity of Basingstoke are the remains of the Holy Ghost Chapel, described by Camden as having been erected in the reign of Henry VIII. by Sir William (afterwards Lord) Sandys for the use of a fraternity of the same name. Mr. Carter, however, is of opinion that the architecture of the chapel is not of later date than the reign of Edward IV., although carvings appear to have been added and alterations made in that of Henry VIII. The fraternity was dissolved in the reign of Edward VI., and its possessions vested in the crown; it was restored by Mary I. and the possessions granted anew 'for the maintenance of a priest for the celebration of divine service, and for the instruction of the young men and boys of the town of Basingstoke.' The fraternity became extinct about the commencement of the seventeenth century, and the estate was seized by parliament, and the building dilapidated and school shut up during the civil wars; Bishop Morley, however, procured the restoration of the estate, about 1670, for ecclesiastical purposes to which it is still applied. The parish church, dedicated to St. Michael, is a spacious and handsome building, consisting of a nave, chancel, and side aisles, with a low square tower. The south side of the church is of stone, but the other sides are constructed with alternate squares of brick and stone. It was built in the reign of Henry VIII. under the direction of Fox, bishop of Winchester. The living, which is of considerable value, is a discharged vicarage in the gift of Magdalen College, Oxford; it is valued in the king's books at *30l. 6s. 5½d.*

When woollen manufactures began to be first established in this country, Basingstoke obtained a considerable share in the business, and was particularly noted for its druggets and shalloons. These manufactures have long ceased; and at present malting and the corn trade form the principal business, which has been much facilitated by a canal (called the Basingstoke Canal) from this town to the river Wey in Surrey, which communicates with the Thames and affords a water-passage to London. The market is on Wednesday, and the fairs on Easter Tuesday, Wednesday in Whitsun-week, 23rd September, and 10th October; all, except the second, are chiefly fairs for cattle. The number of houses in the town, according to the returns of 1831, was 727; and the population consisted of 3581 persons, of whom 1863 were females. The town was incorporated at an early date, and is at present governed by a mayor, recorder, seven aldermen, an equal number of capital burgesses, a high steward, and other officers. The

petty sessions are holden here. Basingstoke possesses a free school of some repute and three charity-schools, one of which, for the maintenance, clothing, and education of twelve boys, is supported by the Skinners' Company of London. John de Basingstoke, a distinguished scholar of the thirteenth century, Sir James Lancaster, the navigator, and the brothers Joseph and Thomas Warton, were born at Basingstoke.

(Gough's *Camden's Britannia*; *Gentleman's Magazine*, 1787 and 1802; Warner's *Collections for the History of Hampshire*; Brayley and Britton's 'Hampshire,' in *Beauties of England and Wales*.)

BASING, JOHN, or DE BASINGSTOKE, who received his name from the place of his nativity in Hampshire, was an extraordinary person for his time. Though the date of his birth does not appear to be fixed, we know that he was alive in the year 1230, and studied not only at Oxford and Paris, after the custom of the age, but also at Athens; a fact remarked by Leland as uncommon in the history of English scholars at that time, who seldom proceeded farther eastward for the prosecution of their studies, and improvement in learning, than Rome or Venice. At Athens he studied the sciences under Constantina, daughter of the archbishop of Athens. Leland says, at his return he brought with him into England various Greek manuscripts, which, together with his proficiency in that tongue, caused Hugh Grossoteste, bishop of Lincoln, a great restorer of that language, to promote him to the archdeaconry of Leicester. It was upon Basing's information, as Matthew Paris tells us, that Grossetesto sent to Athens for a Greek manuscript entitled 'The Testaments of the Twelve Patriarchs,' which, when obtained, he translated into Latin. The translation was printed among the 'Orthodoxographa,' fol. Basil, 1555. Bale and Pits inform us that Basing was first archdeacon of London, and then of Leicester; but the former preferment is mentioned upon no authority. Pegge, in the 'Life of Roger de Weseham' (from Wharton's 'Anglia Sacra'), instead of Leicester, reads Chester. Matthew Paris tells us that John de Basing introduced into England a knowledge of the Greek numeral letters: 'This Master John, moreover, brought the Greek numeral figures into England, together with their symbols, and the knowledge of their import, and explained them to his particular friends. By which figures, also, letters are represented, and, what is most remarkable, any number is represented by a single figure, which is not the case in the Roman numerals, or in ordinary arithmetic.' His words are—'Hic insuper Magister Johannes figuras Græcorum numerales, et earum notitiam et significationes in Angliam portavit, et familiaribus suis declaravit. Per quas figuras etiam literæ repræsentantur. De quibus figuris hoc maxime admirandum, quod unica figura quilibet numerus repræsentatur, quod non est in Latino vel in Algorismo.' (Matt. Par. edit. 1681, p. 721.) The figures, however, which are given in fac-simile in the 'Variantes Lectiones' (signat I on the verso of the leaf) here copied, are neither like Greek letters nor the ordinary Arabic numerals. Basing met with the invention at Athens,



but Matthew Paris, who knew little about these matters, was mistaken in imagining that the Greeks used any such system of notation. The only MS. of Matthew Paris in which these numerals are found, is the enlarged work in Bene't College Library, Cambridge. They do not occur in either of the two Manuscripts of Matthew Paris in the British Museum. Matthew Paris, in the 'Variantes Lectiones' already referred to, observes that the units, or single numbers, are all designated by lines bearing to the left, from the chief upright line. Those representing the numbers, from ten upwards, have the adjunct-lines bearing to the right.

Matthew Paris records the death of John de Basing under the year 1252. His works were: 1. Doctarum Concionum liber unus. 2. Particulæ Sententiarum per distinctiones. 3. Donatus Græcorum; a translation, probably intended to serve for instruction in the Greek tongue, as the Rudiments of Donatus did for the Latin. 4. Concordia Evangeliorum: this is probably the same work which Leland calls Tractatus de Ordine Evangeliorum per annum. He is said to have written other works, the titles of which are unknown.

(See Bale, *Script. Brytann.* cent. iv. p. 302, fol. Basil, 1559; Pits, *De Illustr. Angl. Script.* 4to. Par. 1619, p. 325; Fabricii *Bibl. Med. et Inf. Ætatis*, 4to. Patav. 1754, tom. iv. p. 54; Tanner, *Bibl. Brit. Hib.* p. 430; Pegge's *Memoirs of Roger de Weseham*, p. 46; and *Life of Bishop Grosseteste*, 4to. Lond. 1793, pp. 66, 67, 345, 347.)

BASKERVILLE, JOHN, a celebrated printer, was born at Wolverley in Worcestershire, in the year 1706. He does not appear to have been brought up to any particular business: in 1726 we find him keeping a writing-school at Birmingham, and in 1745 he engaged in the japanning business at the same place, by which he acquired considerable wealth. His taste for literature, and the arts connected with it, led him to direct his attention towards the improvement and perfection of the art of printing. The most obvious improvement to be effected was in the shape of the letters. Mr. Caslon, previous to Baskerville's attempts at letter-founding, had cut a variety of matrices of more beautiful shapes than those of the Dutch types which, up to his time, had been imported into England. Baskerville carried the art to a higher degree of perfection; and even now his types would, in many respects, be considered models. We are told that he spent 600*l.* before he could obtain a single letter to please himself, and some thousands before he made a profit by the pursuit in which he had engaged his skill and property. By his unceasing efforts the art of printing was raised to a degree of perfection previously unknown in this country; and so ardently did he prosecute his favourite object, that, according to a letter addressed to Horace Walpole, dated 2nd November, 1762, he manufactured his own ink, presses, chases, moulds for casting, and all the apparatus for printing. It is highly probable that some of the processes connected with the art of japanning, which he carried on extensively at the same time, contributed, under some modification, to the excellence and beauty of his typographical productions. It is stated in Hansard's *Typographia*, that 'he had a constant succession of hot plates of copper ready, in which, as soon as printed, the sheets were inserted; the wet was thus expelled, the ink set, and a glossy surface put on all simultaneously.' Dibdin, in his *Introduction to the Classics*, has given the following character of the works of the Baskerville Press.—'The typography of Baskerville is eminently beautiful; his letters in general are of a slender and delicate form, calculated for an octavo, or even a quarto, but not sufficiently bold to fill the space of an imperial folio, as is evident from a view of his great Bible. He united, in a singularly happy manner, the elegance of Plantin with the clearness of the Elzevirs; his 4to and 12mo Virgil, and small Prayer-book, or 12mo Horace of 1762, seem to confirm the truth of this remark. He seems to have been extremely curious in the choice of his paper and ink, the former being in general the fruit of Dutch manufacture, and the latter partaking of a peculiarly soft lustre, bordering upon purple. In his Italic letter, whether capital or small, he stands unrivalled; such elegance, freedom, and perfect symmetry being in vain to be looked for among the specimens of Aldus and Colinæus.' (Vol. ii. p. 336.)

Baskerville's printing establishment does not appear to have been profitable to him. It may, however, be remarked, that his works now possess a high value, and particularly his editions of some of the classics are highly esteemed by bibliographers, not only in this country, but on the continent. From a passage in his letter to Walpole, it would appear that in 1762 he was desirous of withdrawing from the business: 'This business of printing,' he says, 'which I am heartily tired of, and repent I ever attempted.' After 1765 little or nothing issued from his press. It is most likely that the typographical improvement which he was the means of effecting was not sufficiently appreciated at the time, and that his efforts were not very liberally encouraged. The University of Cambridge, it is true, granted him permission to print the Bible in folio, and two editions of the Book of Common Prayer; but, at the same time, the University required to be made a sharer in his profits by a payment of 20*l.* per thousand copies of the Bible, and 12*l.* 10*s.* for each thousand of the prayer-book: to the Stationers' Company he had to pay [illegible] for their permission to print the Psalms, without which the Prayer-book would have been incomplete.

Mr. Baskerville was married to the widow of Mr. Eaves; her maiden name was Ruston. He died without issue, Jan. 8, 1775. He was a man fertile in invention, and of an active mind, but he left to others the task of executing his designs. By the constant endeavours which he made to attain excellence in each of the various processes connected with the arts of japanning and printing, they were both brought to a more perfect state; a result which could scarcely have been expected from the exertions of a single individual. Mr. Baskerville was rather eccentric in his habits and opinions. He caused each pannel of his carriage to be painted so as to represent a picture of his trades; and in his will he desired to be buried in his garden under a structure of masonry in the shape of a cone. His will contains an avowal of sentiments contrary to the doctrines of Christianity. The mausoleum above mentioned was destroyed during the Birmingham riots in 1791. In 1820, some labourers who were digging for sand on its site discovered the leaden coffin which contained his remains; and in May, 1821, it was opened for inspection. The body did not present the usual appearances of decomposition; the singular state of preservation in which it was found may probably be attributed to the entire exclusion of external air. The shroud was perfect and very white, and a branch of laurel on the breast of the corpse was, though faded, entire. Mr. Knott of Birmingham has a portrait of Baskerville in his possession, from which an engraving has been made for Hansard's *Typographia*.

(Hansard's *Typographia*; Dibdin's *Introduction to the Classics*.)

BASLE. [See BASEL.]

BASNAGE. Few families have produced so many individuals of literary distinction and moral worth as the family of Basnage. Many of its members were zealous and able supporters of Protestantism in France.

1. NICHOLAS BASNAGE being compelled to leave France on account of his adherence to the reformed religion, fled to England, and became the minister of a congregation at Norwich. He afterwards returned to France, and became pastor of a reformed church at Carentan.

2. BENJAMIN BASNAGE, the son of Nicholas, born in 1580, was, during fifty-one years, pastor of the church which his father had held at Carentan. Benjamin Basnage was a zealous defender of the reformed religion in France. He was successively a provincial deputy of the Protestant churches in Normandy, and head of the assembly held at Rochelle in 1622; and he contributed greatly to the resolutions which were formed in that assembly in consequence of the declared intention of the king to march against the Protestants with fifty thousand men. He also signed the project of defence under the title of *Modérateur Ajoint*, and went to England to solicit aid. The expectations which the French Protestants had entertained of help from James I. not being realized, Basnage proceeded to Scotland to gain the interest of his private friends in that country. On the termination of active hostilities against the Protestants, Basnage returned to France, and was appointed deputy for Normandy in the national synod which was held at Charenton in 1623. The provincial synod of Normandy having permitted him to leave his church, his congregation appealed to the national synod at Charenton, which rejected the appeal, and gave Basnage leave to accept a vocation to Rouen or to other places; but he considered his church as his wife, from which he ought not to separate. The vigour and zeal with which he maintained the interests of the reformed religion rendered him an object of increasing suspicion to the court. The king, by a decree, forbade him to exercise the ministerial functions, and refused him permission to appear as a deputy, and to take a part in the synod held at Charenton, A.D. 1631. This synod commenced its session by remonstrances against this decree, which were so forcibly expressed, that the court yielded, and Basnage was admitted to the synod, in the deliberations of which assembly he exercised great influence. He was elected president of the national synod held at Alençon in 1637. The infraction of the edict of Nantes, and the controversy between the reformed clergy themselves on the universality of grace and the divine decrees, were the leading topics discussed in this synod.

Benjamin Basnage died in 1652. His principal work, a Treatise on the Church ('Traité de l'Eglise'), was printed at Rochelle, 1612. He left imperfect a work against the worship of the Virgin.

3. ANTOINE BASNAGE, the eldest son of Benjamin, was born in 1610. After the revocation of the edict of Nantes, he escaped to Holland in 1685, and died in 1691 at Zutphen, in which place he had held a pastoral charge.

4. SAMUEL BASNAGE de Flottemanville, son of Antoine, was born at Bayeux in 1638. He preached at first in his native place, but escaped with his father to Holland in 1685. He died a preacher at Zutphen in 1721.

The principal works of Samuel Basnage were—'L'Histoire de la Religion des Eglises Reformées,' Rotterdam, 1690, 2 vols. folio, republished in 1699; 'De Rebus Sacris et Ecclesiasticis exercitationes Historico-criticæ, in quibus Cardinalis Baronii Annales ab an. XXXV. in quo Casaubonus desiit expenduntur,' Traject. 1692, 1717, 4to.; 'Annales Politico-Ecclesiastici annorum DCXLV. a Cæsare Augusto ad Phocam usque in quibus res imperii ecclesiæque observatu digniores subjiciuntur oculis erroresque evelluntur Baronio,' Rotterdam, 1706, 3 vols. folio.

5. HENRI BASNAGE de Franquenay, the youngest son of Benjamin Basnage, was born on the 16th of October, 1615, at St. Mère Eglise, in Lower Normandy. He studied for the bar, and became one of the most able and eloquent advocates in the parliament of Rouen, where he took the oaths in 1636. His learning was immense and his integrity unsullied. He died in 1695, and left three sons, two of whom will be subsequently noticed; the third, who was in the service of the States General, died in 1732. His daughter, Magdalen, married, in 1682, M. Paul Baldry, or Baudri, who leaving France after the revocation of the edict of Nantes, was made professor of ecclesiastical history at Utrecht.

His works are, Coutumes du Pays et Duché de Normandie, avec commentaires, 2 vols. fol., 1678, 1681, 1694; Traité des Hypothèques, 1687, 1724, 4to. The complete works of Basnage were published in 2 vols. fol., Rouen, 1776.

6. JAQUES BASNAGE de Beauval, the eldest son of Henri, born at Rouen, 8th of August, 1653, was the most celebrated member of his family. He was sent when very young to Saumur, to study under the famous Tannequin, or Tannegui, or Tanaquil le Févre, and became the favourite pupil of his master. Le Fevre endeavoured to disgust him with the profession of the ministry. 'You know this office,' he said to him, 'only by its bright side, and are ignorant how it has declined since its first institution. Believe me, you are too honest a man to become an ecclesiastic. You are too candid to exercise these functions as they are at present exercised, and your frankness would render the greater part of your colleagues your enemies.' There may have been some tincture of personal animosity in these words of Le Févre, since he was unfriendly to the clergy of Saumur, who had caused him some trouble. The advice of the master did not overpower the resolution of the pupil, and Basnage followed his previous inclination for the ministry. At the age of seventeen he went to Geneva, already well read in the best Greek and Latin authors, and acquainted with the Spanish, Italian, and English languages. At Geneva he studied theology under Mestrezat, Turretin, and Tronchin; and at Sedan under Jurieu and Beaulieu. On his return to Rouen he was received into the ministry in September, 1676, at the age of twenty-three, and became pastor of the reformed church in that city. He married, in 1684, Anne du Moulin, daughter of Cyrus du Moulin, and grand-daughter of Peter du Moulin.

The church at Rouen being closed by authority in June, 1685, Basnage obtained permission from the king to retire to Holland; and accordingly he settled at Rotterdam, in which place he was a stipendiary minister, until, in 1691, the consistory, influenced by Heinsius, appointed him pastor of a church at the Hague. At the Hague he not only exerted himself in his religious duties with indefatigable zeal, but was also employed in state affairs. He was the medium of a secret negotiation carried on by Maréchal d'Uxelles, plenipotentiary of the French king at the congress of Utrecht, and acquitted himself in this affair with so much ability, that he was afterwards employed in several important commissions. The Cardinal de Bouillon, who was at that time in Holland, and had great confidence in Basnage, communicated to him all his intercourse with the States. The Abbé, afterwards Cardinal, Dubois being at the Hague in 1716, to negotiate a defensive alliance between France, England, and the States General, received orders from the Duke of Orleans, the Regent, to apply to Basnage, and to regulate his conduct by the advice he should receive. Dubois acted

in concert with Basnage, and the alliance was concluded on the 14th of January, 1717. His services on this occasion procured for Basnage the restitution of all his former possessions in France.

Basnage was the personal friend of the Grand Pensionary Heinsius, and while in Rotterdam had a weekly meeting with Poets, Bayle, and other scholars. He carried on a correspondence with several princes, noblemen, and ministers of state, and with many scholars in France, England, Germany, and Italy. He was scarcely less esteemed by Catholics than by Protestants. Voltaire said that Basnage was fitter to be a minister of state than of a parish. His health, which till the year 1722 had been remarkably good, then began to decline. He died on the 22nd of September, 1723, in his seventy-first year. He left only a daughter, who was married to M. de la Sarraz, minister of war to the king of Poland. The Sieur le Wier, speaking of Jacques Basnage, says, 'He was scrupulously exact, even in most trivial particulars. His candour, frankness, and integrity are as apparent in his works as his erudition. Having mixed much with society, he had acquired a polish of manners which scholars rarely possess. He was affable, obliging, popular, and courteous; he delighted in serving others, and in using his influence in behalf of the unbefriended.'

The following are some of his principal works; a complete list would be very long:—

Examen des Méthodes proposées par Messieurs de l'Assemblée du Clergé de France en 1682, Cologne, 1684, 12mo. This work was the foundation of his subsequent reputation. It is well written, but he never affixed his name to it. There are some observations in this book on the Critical History of the Old Testament by Père Simon, which occasioned a very sharp reply.—Réponse à M. l'Evêque de Meaux, sur sa Lettre Pastorale, Cologne, 1686, 12mo. This work is against the Pastoral Letter of Bossuet, addressed to the new Catholics.—Divi Chrysostomi Epistola ad Cæsarium Monachum, cui adjunctæ sunt tres Epistolicæ Dissertationes: 1. De Apollinaris Hæresi; 2. De variis Athanasio suppositis Operibus; 3. Adversus Simonium, Rotterdam, 1687, 8vo. This work was reprinted under the general title of Dissertationes Historico-Theologicæ, Rotterdam, 1694, 8vo., with an answer to Father Hardouin, who had criticised Basnage's History of Apollinaris. In the third treatise, Basnage answers Simon, who had ill-used him in the preface to his Critical History of the Old Testament.—La Communion Sainte, ou Traité sur la nécessité et les moyens de communier dignement, Rotterdam, 1688, 12mo. The fifth edition is very much enlarged, and contains a third and fourth book on the conduct of communicants before and after communion, printed at Rotterdam in 1697, in 12mo. Basnage added a book in which he treats of the duties of those who do not communicate. There have been several editions of this work, which has been so much admired, even by Roman Catholics, that it has been printed for them at Rouen and Brussels. M. de Flamare, a priest, who had been a Protestant, has inserted it in his work entitled 'Conformité de la Créance de l'Eglise Catholique avec la Créance de l'Eglise primitive, &c., Rouen, 1701, 12mo., 2 vols.—Histoire de la Religion des Eglises Réformées, &c., pour servir de réponse à l'Histoire des Variations des Eglises Protestantes, par M. de Meaux, Rotterdam, 1690, 8vo., 2 vols.: again in 1721, 2 vols. 8vo., and in 1725, 2 vols. 4to.; the last edition very much enlarged. This work has been since joined to the History of the Church.—Traité de la Conscience, dans lequel on examine sa nature, ses illusions, ses craintes, ses doutes, ses scrupules, sa paix, et divers cas de conscience, avec des Réflexions sur le Commentaire Philosophique, Amsterdam, 1696, 2 vols. 8vo. Two editions of this work have been printed at Lyons in 3 vols. 12mo. It contains a confutation of the sophisms of M. Bayle on 'la Conscience errante.'—Histoire de l'Eglise depuis Jésus Christ jusques à présent, Rotterdam, 1699, 2 vols. folio.—Dissertation Historique sur l'usage de la Bénédiction Nuptiale, insérée dans l'Histoire des Ouvrages des Savans au mois de Janvier, 1703. Basnage here proves that consent is the essence of marriage. 13. Dissertation sur la manière en laquelle le canon des Saintes Ecritures s'est formé, pour servir d'Apologie à ce qu'il en a dit dans l'Histoire de l'Eglise contre la préface d'un livre de M. Richardson, insérée dans l'Histoire des Ouvrages des Savans au mois de Janvier, 1704.—Histoire des Juifs depuis Jésus Christ jusques à présent, pour servir de Supplément à l'Histoire de Joseph, Rotterdam, 1706, 5 vols. 12mo.; a new and enlarged edition at the Hague in 1716, 15 vols. 12mo.; translated into English by Thomas Taylor, 1708, fol.—Histoire des Juifs, réclamée et rétablie par son véritable auteur M. Basnage, contre l'édition anonyme et tronquée qui s'en est faite à Paris, chez Roulland, 1710, avec plusieurs additions pour servir de sixième tome à cette Histoire, Rotterdam, 1711, 12mo. He attacks M. du Pin, who had printed it at Paris, after having changed what he thought proper, without mentioning the author.—Dissertation sur l'Antiquité de la Monnoye et des Médailles des Juifs, et sur la Préférence des Caractères Samaritains aux Hébreux.—Prospectus novæ editionis Canisii, Dacherii, &c., Rotterodami, 1709. Basnage undertook this year to give a new and much enlarged edition of the Lectiones Antiquæ Canisii. The publishers, not being able to continue the work, resigned what they had already printed to the Sieurs Wetstein, who published this noble collection under the title of Thesaurus Monumentorum Ecclesiasticorum et Historicorum, seu Henrici Canisii Lectiones antiquæ, ad sæculorum ordinem digestæ, variisque opusculis auctæ, Antverpiæ, 1725, 7 vols. folio. Besides a great number of fresh pieces by which this edition was augmented, Basnage has enriched it with prefaces on Ecclesiastical Antiquities in general.—Instructions Pastorales aux Réformés de France sur l'Obéissance due au Souverain, 1720, 12mo. The Duke of Orléans, regent of the kingdom, fearing lest the new converts of Dauphiny, Poictou, and Languedoc, should be excited to insurrection by the emissaries of Cardinal Alberoni, begged of Basnage, in 1719, through the Count de Morville, then ambassador in Holland, to write to those whose fidelity had been assailed, and to urge them by his exhortations to the obedience which they owed to their king. Basnage accordingly addressed to them a Pastoral Instruction, which was reprinted at Paris by order of the court, and distributed in the suspected provinces. This address had the desired effect, but as Basnage laboured in the same letter to prove to the new converts the excellence of the Protestant religion, M. Catolan, bishop of Valence, wrote an answer, which M. Basnage refuted by other Pastoral Instructions.—Annales des Provinces Unies depuis les Négociations pour la Paix de Münster, avec la Description Historique de leur Gouvernement, the first vol. folio, Hague, 1719. This volume, which begins in 1646, ends at the Peace of Breda in 1667; the second, in 1726, comes down to the Peace of Nimeguen in 1678. Basnage continued the work up to 1684, and has left a plan for conducting it till 1720. Dissertation Historique sur les Duels et les Ordres de Chevalerie, Amsterdam, 1720, 8vo. This is a curious work. He also furnished many pieces to his brother, M. Basnage de Beauval, for his 'Histoire des Ouvrages des Savans.'

Basnage de Beauval, Henri, the younger son of Henri Basnage de Franquenay, and brother of Jacques Basnage, born at Rouen, Aug. 7, 1656, followed the profession of his father. On the revocation of the Edict of Nantes, in 1687, he took refuge in Holland, and died there, March 29, 1710, aged 54 years. He wrote a *Traité de la Tolérance des Religions*, 1684, 12mo.; and edited *L'Histoire des Ouvrages des Savans*, a widely-circulated journal, which was commenced in Sept. 1687, as a continuation of Bayle's *Nouvelles de la République des Lettres*, and terminated in June, 1709: it consists of 24 vols. 12mo. Basnage published, in 1701, an improved edition of Furetière's *Dictionary*; the *Dictionnaire* de Trevoux (1704) is only a reprint of this work, but without mention of the name of either Furetière or Basnage.

(Niceron, *Mémoires pour servir à l'Histoire des Hommes Illustres*, tome iv. pp. 294, 310.)

BASQUES, LES, or LES PAYS DES BASQUES, a district in the south-west extremity of France, on the Spanish frontier, now included in the department of Basses Pyrénées, or Lower Pyrenees. It comprehended the three subdivisions of Labour, Basse Navarre, and Soule, the capitals of which were respectively Bayonne, St. Jean Pied de Port, and Mauléon. Les Basques is properly the designation of the people, not of the country, though familiarly applied to the latter.

Les Pays des Basques were bounded on the north by the Adour, in the lower part of its course, and by a line drawn eastward from that river; on the south by the Pyrenees; on the west by the ocean, and the river Bidassoa; and on the east by the country of Bearn. The greatest length of the district was about sixty miles, measured from the mouth of the

Bidassoa to the south-eastern point of the country of Soule. The greatest breadth was nearly forty miles. The whole district is mountainous, and the soil in general sterile; but what produce the inhabitants can raise by care and labour is accounted excellent. In the *Pays de Soule* there is good timber in the mountains, but it is difficult to get at it. The principal rivers are the Seison, which falls into the Gave d'Oléron, and the Bidouze and the Nive, which fall into the Adour—the latter at Bayonne. Two principal roads from France into Spain cross this territory: the road to Madrid, through Burgos, passes through Bayonne and St. Jean de Luz; that to Madrid, through Pampeluna, passes through St. Jean Pied de Port.

The population of the chief places in the district, in 1832, was as follows:—Bayonne, 13,008 for the town, or including the suburb of St. Esprit*, 17,116; the joint population of the two communes of Bayonne and St. Esprit, 20,668; Hasperren, population of the commune, 5357, but we know not how large a proportion of this is rural population; St. Jean de Luz, 2056, or 2860 for the whole commune; Urrugne, population of the commune, 3067, proportion of rural population unknown. In 1826, Mauléon had 1054 inhabitants, and St. Jean Pied de Port, as given by M. Balbi in round numbers, 2000.

The manners, the costume, the language of the inhabitants of this district show that they have a different origin from the other inhabitants of Europe. They are a lively, industrious people, muscular and well made, active in body, frank in manners, and passionate in character. Their language is a relict of the antient Iberian which prevailed over the southern and eastern parts of Spain, and over the south-west part of France. 'M. Guillaume de Humboldt has proved that the Basque language seems to have some affinity with the Semitic languages, and in certain respects some analogy to the American languages. M. Klaproth has discovered also, in the Basque, a great many forms which belong to the northern and western parts of Asia. M. Guillaume de Humboldt has observed, that the languages of the different antient nations who inhabited the Spanish peninsula, the southern part of Gaul, some parts of Italy, and the three large islands of the Mediterranean (*i.e.* Sicily, Sardinia, and Corsica), belonged to the Iberian language, which is still found in the Basque.' (See M. Huot's note to the last edition of Malte Brun's *Géographie Universelle*, Paris, 1832, tom. iii. p. 119.)

In the middle ages the Basques were notorious for their propensity to brigandage, and for the rapidity with which they retired to their mountains, outstripping all pursuit. (Piganiol de la Force, *Description de la France*, Paris, 1722; *Voyage dans les Départemens de la France*, par J. La Vallée, &c., Paris, 1798; Malte-Brun.)

BASQUE PROVINCES, or BASCONGA'DAS PROVI'NCIAS. The three provinces known by this name occupy a territory of a form almost triangular, between 42° 25′ and 43° 25′ N. lat., and 1° 40′ and 3° 25′ W. long. It is bounded on the east by France and Navarra, on the west and south by Old Castile, and on the north by the ocean. The provinces are, Guipuzcoa on the east, Vizcaya on the west, and Alava on the south. The territory is exceedingly mountainous, being traversed by the offsets of the great Pyrenean chain, called by some geographers the Cantabrian Pyrenees. The different branches of that chain form between them numerous and deep lateral valleys. The first of these ranges, which is composed partly of calcareous rocks and sand-stone, and partly of slate, has its origin in Navarra, and forms the separation between that province and Alava. It is a continuation of the Sierra de Aralar, the direction of which is from west to east. On entering Alava, it takes the names of Montes de Olza, Alzánia, Urbia, San Adrian, and Aranzazu. Part of this last mountain is the Peña de Aloña, an immense mass of grey jasper striped with white. At Puerto de Arlavan, between Ullivarri, Gamboa, and Salinas, the range is traversed by the road from Bayonne to Madrid. After that point follow the Montes de Albertia and Bostibayeta, which abound in copper-mines and black marble; the Gorbea, the Altube; and then the range ends in a continuation of hills, forming the separation between Alava and Vizcaya. A second range runs from the valley of Burunda, and extends from north to south, between Navarra and Alava, forming the western barrier of the former province. It divides into two branches, which, crossing Alava from east to west, terminate on the banks of the Ebro, forming the boundaries of Alava on the side of Old Castile. The mountain of Jaitzquibel, which extends from Cape Higuer to Pasages, on the coast of Guipuzcoa, is chiefly composed of sandstone, which is used in building. From Orio to San Sebastian, in the same province, another mountain extends, on the highest point of which, called Igueldomendi, stands the light-house of San Sebastian, visible at the distance of thirty miles at sea. In the district of Irun is the mountain of San Marcial, celebrated in the late peninsular war. The mountains of Alzania form the boundary between Guipuzcoa and Navarra; and that of Arno, which abounds in tin, and contains also several mineral springs, separates Guipuzcoa from Vizcaya. The mountains of Vizcaya are chiefly composed of calcareous rock and sandstone, and abound in iron. Marbles of various colours are also found in different parts of the province. In the three provinces the mountains are well covered with fruit and timber-trees. The principal rivers are the Zadorra, in Alava, a tributary of the Ebro; in Vizcaya, the Nerva, or Nervion, the Cadagua, the Mundaca, the Lequeitio, and the Ondarroa, all of which rise in the mountains of Bizcarqui and Oiz, and flow into the sea at the places to which they give their names. In Guipuzcoa, at the extreme west, is the Deva; and proceeding to the east the Urola, the Oria, the Urumea, the Oyarzun, and the Bidassoa, which separates France from Guipuzcoa. The aspect of the country is very picturesque; and the soil, although it is chiefly composed of clay, is rendered very productive by the industry of its inhabitants. From a very early period they have mixed the clay with calcareous earth. The principal products are wheat, barley, pulse, flax, hemp, and pasture. Alava produces also oil, and a weak sort of wine, called chacoli by the inhabitants; but the principal beverage of the Basques is cider. The climate is healthy, and though very damp and cold in the highlands, is temperate in the valleys.

The chief towns in Guipuzcoa are, Fuente-Rabia, at the mouth of the Bidassoa; Pasages, celebrated for the security of its harbour; San Sebastian, the capital of the province; and Guetaria, the birth-place of Sebastian de Elcano, a celebrated navigator of the sixteenth century, whose statue is in the principal square. In Vizcaya, Motrico, Lequeitio, Berméo, Bilbao, the capital, and Somorostro celebrated for its iron-mines. All these towns are situated on the coast. On the road from Bayonne to Madrid are Irun, at a short distance from the Bidassoa; Hernani, Tolosa, Villa Real de Zumarraga, Vergara, the seat of the Seminario Bascongado, instituted for the literary education of the Basque youth; Mondragon, and Salinas, the last town of Guipuzcoa, on the frontier of Alava. In Alava the chief towns, besides the capital Vitoria, are Salvatierra, Lequiano, and Gamboa.

The population of the three provinces, according to Miñano, amounts to 342,929 souls. The people live for the most part on isolated farms scattered over the country, there being in the three provinces few large towns; the greatest part of these farms are cultivated by the proprietors. Guipuzcoa is the best peopled, not only of the Basque, but of all the provinces in Spain, in proportion to its extent. Antillon gives it 2009 individuals for every square league; according to which calculation, the population of the whole peninsula, if it were in the same proportion, would be more than double what it is at present.

The Basque nation is certainly the first that settled in the Spanish peninsula, as far as historical evidence goes, but its origin is unknown. Humboldt considers the modern Basque nation as the representative and the descendants of the great nation of the Iberi, who were spread over the whole peninsula [see BASQUES, LES], and spoke one language, modified into different dialects. According to the Basque historians, at an epoch long before the invasion of Spain by the Romans, the Vascones founded colonies in France, Ireland, and Italy. Though their assertions cannot be satisfactorily proved, yet the number of Basque words existing in the names of places in Italy, of which Orvieto, and Urbino, may be quoted among others, is perhaps a sufficient proof that some of the inhabitants of both those countries once spoke the same language. [See IBERI.]

In the time of the Romans, the people now called Basque were called Vascones; and in the fifth century of our æra they were known by the name of Varduli (*Diccionario de la Academia*, art. *Alava*). The present name of Basque is derived, according to some, from Bassoco, a mountaineer or

* This suburb lies beyond the Adour, and consequently out of the Pays des Basques.

highlander. Humboldt derives it from Basoa, a forest, from which word we have Baso-coa, belonging to a forest, and Basocoac, which is the same word, with the plural termination. The territory which they occupied in antient times extended on both sides of the Pyrenees, and comprised the three Basque provinces, and both Spanish and French Navarre (Strabo, book iii.; Pliny, book iii. chap. 20). They were the only Spaniards who preserved their independence, not having been subdued by any of the nations who invaded the peninsula. Pompey was the first who, in the year 60 B.C., led the Roman legions into that country; but the passage of Strabo (p. 240) quoted to prove that he built Pamplona, was evidently not intended by the author to signify anything of the kind. A body of Vascones is mentioned (Tacit. *Hist.* iv. 33) as serving against Civilis and the Batavi. [See BATAVI.]

No less obstinate was their resistance against the Goths. Leovigild effected their final conquest A.D. 580. But the Arabs were never able to penetrate into their fastnesses, and the Christians found in those mountains a shelter against Mussulman oppression. At that period, it is stated by the Basque historians that their nation obeyed a lord called Andeca, who had the title of Duke of Cantabria, and perished with King Don Rodrigo at the battle of Guadelete in 717. The different chiefs of those provinces were always connected with some of the most powerful Christian kings of the surrounding states, and accordingly we find them sometimes attached to Navarre, at other times to Aragon, to Leon, or Castile, according as it best suited their interests. One of the noblemen of Alava (Count Vela) having displeased the Count of Castile, Sancho Garcia, was obliged to fly to Leon, where he avenged himself by murdering the Castilian chief, who had gone to Leon to celebrate his marriage with a Leonese infanta. Having fled to Aragon, he was at last taken by the king of Navarra and burnt alive. In 1288 the Lord of Vizcaya died without leaving a male heir, and a dispute about the succession arose between a daughter and a brother of the deceased chieftain. The rich families of the three provinces sided with one or the other of the claimants, and then ambition and jealousies produced intestine wars of the most dreadful character: this quarrel is considered to be the origin of the two parties of Oñecinos and Gamboinos, which even to this day exist in that country.

In the year 1200 Alonso VIII. of Castile, in his wars against the king of Navarra, invaded Alava and Guipuzcoa, and those provinces were united to Castile, the king taking the customary oath to maintain their privileges. The Lord of Vizcaya was already an ally of the Castilian king. In 1332, the civil discords of the Basques reached such a point, that the Alaveses, renouncing their privileges, threw themselves unconditionally into the hands of the Castilian monarch. The king sent a confidential minister to settle their differences, and generously granted them the enjoyment of the privileges which they had renounced.

The Vizcayan historians count nineteen lords, the last of whom was Nuño de Lara, who died in his childhood in 1351. He left behind him two sisters, whom Pedro the Cruel of Castile took under his protection. He married the elder to his brother Don Tello, and the other to his cousin Don Juan of Aragon. He gave the lieutenancy of Vizcaya to his brother Tello, but at the same time promised to Don Juan the lordship of Vizcaya, and sent him with troops to dispossess Tello of the lieutenancy. The latter defended himself vigorously; but Pedro marching to assist Don Juan, forced his brother Tello to seek a refuge in France, leaving his wife behind, who became a prisoner of her brother-in-law.

Don Juan now requested the king to place him in possession of his lordship. Pedro agreed, but secretly intrigued with the junta of Guernica to proclaim Pedro himself their lord. This proclamation was accordingly made. The king, after taking the customary oath to preserve the privileges of the province, under the tree of Guernica, went with the junta to Bilbao. There the monster ordered the unfortunate prince to be murdered, and throwing the lifeless body from the balcony, said to the people, 'Take ye him who wished to be your lord.' The two sisters were transferred from prison to prison, until at last Pedro put an end to their miserable existence. When Pedro was defeated by his brother Enrique, the latter gave the lieutenancy of Vizcaya to Tello; and, on the death of Tello, he conferred the title of Lord of Vizcaya on his eldest son, afterwards Juan I. of Castile, from which time the kings of Castile have had that title.

The government of the Basque provinces differs entirely from that of the rest of the peninsula. Every province has its own constitution, and a separate government, not differing much in spirit and form from each other. The people of Alava, at a very remote epoch, which some historians suppose to have been prior to the invasion of the Arabs, appointed their civil and military governors at a general assembly. This assembly met every year in the Campo de Arriaga, a plain near Vitoria. It was composed of the bishop and archdeacon of Calahorra, of all the secular clergy of the province, and all the principal men, including also ladies, who were the representatives of their families. This junta was afterwards known under the name of La Hermandad de Arriaga, or the Fraternity of Arriaga. They elected four Alcaldes for the civil and judicial administration of the province, and a military governor who was called duke, count, or lord. The office of the governor was for life, and sometimes it continued for several generations in the same family. In the year 1467 at an assembly held at Rivabellosa by order of Enrique IV. of Castile, a collection of the laws and privileges of Alava was formed and approved, and by that code they are governed at present. According to this code, a Junta-General is held at Vitoria every year, at which two comisarios are elected, one of whom must be a citizen inhabiting one of the towns, and another from the small villages. There is also a Diputado-General, who presides at the assemblies, but has no voice in them: he commands the forces of the province and communicates with the government of Madrid. The province is divided into fifty-three Hermandades, administered by seventy five Alcaldes, elected at the Junta General. These Alcaldes are subject to the Diputado-General, and every year give to the Junta General an account of their administration.

The Guipuzcoans, according to their present constitution, hold a Junta General, or general assembly every year in the month of July, at one of the eighteen towns of the province. At this junta they elect four diputados generales, who must be domiciliated at San Sebastian, Tolosa, Azpeitia, or Azcoitia. These diputados, who are elected for one year, form the Diputacion, which is the government of the provinces, the government residing in rotation, three years in each of the four towns just mentioned. There is also a diputacion called Extraordinaria. There are besides Alcaldes de Hermandad, to administer justice in the different districts. These Alcaldes are eight, and are elected by the junta. Besides these Alcaldes, whose office is to prosecute robbers and other malefactors, there are seventy seven Alcaldes Ordinarios to administer justice in their respective districts. There is also an Alcalde de Sacas, whose office is to prevent the introduction of prohibited articles of commerce into the province. He is also elected by the General Assembly: all these offices are annual.

The Vizcayans hold a general assembly every two years. It is summoned by the Corregidor of Bilbao, and every town, village, or hamlet has one vote, and sends one deputy to it. The first meeting is always held under an oak near the town of Guernica. This oak does not appear to be of great antiquity: it probably has succeeded another, and will itself be succeeded by other young ones, which are carefully cultivated in the vicinity. Close to the trunk of the tree is a large bench, or throne, where the deputies sit. One of the secretaries tells one by one the names of all the towns in their order, and receives the credentials of every member. The assembly then goes to a hermitage near the tree, where it holds the rest of the sittings, which are always public. The subjects for discussion are proposed in Spanish, and then discussed in Basque. The order and regularity in these assemblies, composed of a multitude of country people, are remarkable.

There is another junta, called 'of Merindad,' which is held at Bilbao, and in which only the towns have a vote, each sending one member. The Junta de Merindad appoints every year, by lot, the diputacion, which is composed of the diputados, six regidores, two syndics, and two secretaries. Half of the number of these individuals must belong to the political party of the Gamboinos, and the other to the Oñecinos. The two diputados are sometimes appointed by acclamation of the junta. The Junta de Merindad is very often more powerful than the Junta-General; and the laws enacted in it have the same force as those made in the latter assembly. The richest and most influential families of the province exercise a power in the Junta de Merindad which is injuri-

ous to the welfare of the community. On that account, the generality of the Vizcayans received as a blessing, in 1812, the constitution of Cadiz, which, without depriving them of their privileges, liberated them from the oppression of that aristocratic body; and it was only through the intrigues of these families, and at the instigations of the agents of the Holy Alliance, that the people revolted in 1822 against the liberal government.

The diputacion is intrusted with the administration of the province: it receives and expends the public funds, disposes of the forces for the defence of the state, gives letters of citizenship to strangers, and is the supreme tribunal of appeal in civil matters. At the general assemblies the diputacion is obliged to give an account of its administration, and of the manner in which the public funds have been expended. There is no building belonging to the state; even the house of the diputacion and the prisons belong to private individuals, who let them to the state. The people pay only one direct tax, which consists in a moderate rate for every house, and is equally divided, so that rich and poor contribute to the state the same sum. The revenues of the church are so scanty, that the richest abadia or rectory is not worth more than 160*l.* per annum.

The chief privileges of the Vizcayans consist in paying no taxes except those levied by their juntas, which consist of the house tax above mentioned, and a moderate duty upon iron; in every Vizcayan being by birth an hidalgo, or gentleman, and acknowledged as such in every part of Spain; in not being subject to any tribunal, or to any other laws, either in their own province or in any other part of the peninsula, than their own, and in having a judge resident at Valladolid for the administration of those laws in cases occurring out of the province; in being exempt from military service, except in the defence of their own country; in the enjoyment of commercial liberty, so that no article of commerce is prohibited or taxed, except those which are so by the tribunal of commerce of Bilbao; and, finally, in not having any officers appointed by the government of Madrid, except the masters of the post-office.

The Basques of all the three provinces also contribute to the royal exchequer a certain sum, which they call 'donativo voluntario,' or voluntary donation.

The Vizcayans and Guipuzcoans are the best sailors in the peninsula, and skilful in commercial transactions. They are very active and industrious: their chief occupations are agriculture, commerce, and the manufacturing of iron. The women assist the men in the cultivation of the ground, and are remarkable for their cleanliness. Their manners are simple and easy. They are fond of dancing in their festivities, and enjoying the moderate pleasures of the table. Their national instruments are the tamborine and the bagpipe: their dance, called zorzico, is quick and lively, and is always accompanied by singing. In their weddings they greet the bride, in going to and coming from the church, by firing guns and pistols, and very often she is induced to fire them herself. In some villages, after the burial ceremony is over, they distribute bread, cheese, wine, and walnuts among the persons invited; and some beg money to pay for masses for the release of the soul of the deceased from purgatory. The dress of the men and women is similar to that of the mountaineers of Castile: both wear abarcas, a species of shoe which is made of a hard and untanned piece of hog-skin, or that of any other animal, which they soften by soaking it in water, and then cut it into pieces of the size of the foot, which they fasten on with strings.

The Basques are in general frugal, cheerful, honest, and courteous, without meanness. When kindly treated, they are docile and manageable; but if they are dealt with severely and harshly, they become stubborn and intractable; and it is for that reason that they are with great difficulty subjected to severe military discipline, particularly by officers who are not of their own country. Gonzalo de Córdoba, from the experience he had of them in Sicily, often said that he would rather keep lions than Vizcayans. They are a brave people, and better adapted for a system of guerrilla warfare than perhaps any other in Spain.

(See *Diccionario Geografico-Histórico de España*, by the Royal Academy of History; Henao, *Antigüedades de Cantabria*; Landazuru y Romarate, *Historia de Alava*; *Fueros de Vizcaya*.)

BASQUE LANGUAGE. This language, Léngua Bascongáda, called also by the Spaniards Bascuence and Vizcaino, and by the French Basque, is spoken by the people who inhabit the Basque provinces, and part of Spanish and French Navarre. The people call themselves Euscaldunac, their country Euscalerria, and their language Euscara, or Escuara. The latter word is derived, according to Larramendi, from *escuco*, free, and *era*, mode or manner. But this is perhaps hardly satisfactory. The elementary syllable in all these words is *Eusc* or *Esc*, which appears in the forms *Vesc* and *Osc* in such names of places as Vesci and Osca, &c.: the true meaning of this element seems doubtful. Balbi, in his *Atlas Ethnographique*, places the Euscara in the first family of the European languages, and classes it with the Celtic, which opinion, however, few philologists have hitherto adopted. The Jesuit Boovide, quoted by Abate Hervas, says, that having examined the Celtic Dictionary of Leibnitz, he found only two words common to both languages. But upon this we may remark, that the Jesuit must have looked very carelessly not to have found a larger number: if he had carried his inquiries no farther than the numerals to 20 inclusive, he ought to have arrived at a different result. The Basque language is certainly generally supposed to be totally different from all the European languages, an assertion from which entire assent may be reasonably withheld for the present. It is also loosely said to bear some affinity, if not in its roots, at least in its construction, to some of the Asiatic tongues. We may consider the Celtæ and Iberi as two historically distinct nations, without at the same time assuming, what we can never prove, that they do not descend from one common stock. If we are to believe the Basque grammarians, their language existed before the building of the Tower of Babel, and was brought to Spain by Tubal. Setting aside such extravagances, it may be remarked that the testimonies adduced to prove that the Basque language was spoken by all, or nearly all, the primitive inhabitants of the peninsula, are so numerous and conclusive as to amount almost to a demonstration. The etymology of the words denoting the antient names of mountains, rivers, and towns in almost every part of the peninsula, is one of the strongest proofs. The word España is purely Basque, according to Astarloa, and means lip or extremity: W. Humboldt, however, disputes this explanation, and apparently with good reason. The river Ebro may be derived from *ibai-ero*, a foamy river, or from *urbero*, a warm river; Carpetania is derived from *gara-be*, with the Latin termination *tania*, and means the place at the foot of the hills. The examples of words in which the first element appears to be Basque are perhaps the most striking: such is *acha*, *aitza*, a rock, which in names of places assumes the form *asta*. Modern names which contain the element are, Asteguieta, Astobeza, Astorga, &c. In Spanish names mentioned by Roman writers the element *asta* also occurs, as in Asta, Astigi, Asta-pa (a dwelling at the foot of a rock), Astures, Asturica, and the river Ast-ura (rock-water). (See Humboldt's *Essay*, p. 23.) The word *briga*, which occurs at the termination of some antient Spanish names of places, but which appears much more frequently in Gaul, is considered by Humboldt not to be a Basque word. The explanation of this word by Astarloa may serve to show how cautious we should be in following those who have written on this language. *Bri*, *vri* and *uri*, he says, mean a peopled place; the termination *ga* is negative, so that *briga* means a place without inhabitants, or a place without a town, or a wild population hence the words *bergante* in Spanish, and *brigand* in French; but as *briga* is always the termination of the name of a town or inhabited place, we must suppose that the word *briga*, in course of time, got a meaning exactly contrary to its primary meaning. Such an hypothesis, as Humboldt remarks, scarcely needs confutation.

All the radicals in the language are significative, even the names of the letters of the alphabet. The Basques write as they speak, and the sound of their letters, whether vowels or consonants, is fixed. It is said that aspirated and guttural sounds did not exist originally in the language. Even at the present day the Basque people give to the *z* a much softer sound than the rest of the Spaniards. According to d'Iharce Bidassouet, quoted by Balbi, the names of the alphabetical characters, nouns, pronouns, and adverbs, may be converted into verbs. The Basque language possesses a great variety of terminations. Besides terminations equivalent to all those existing in English, it has frequentative, diminutive, and augmentative terminations, like the Spanish and Italian. Verbal nouns are formed with the termination *ari* or *arija*, to denote a physical actor, and *lia*, to denote a

moral one: as *gudarija*, a warrior, *iracuslia*, a teacher or doctor. For the abstract substantives it has likewise two terminations, *tasuna* and *querija*; the former denotes a natural and the latter a moral quality, defect, or perfection. Thus, *zoratásuna* denotes madness, as a physical derangement of the mind; *zoraquerija*, an inclination to madness from a strong passion. The possessive terminations are three, *cua*, to denote something contained in the thing expressed by the word; *arena*, to denote the possessor; and *ez* or *ezco*, to express the matter of which it is formed: as *echecua*, contained in or belonging to the house: *guizonarena*, of the man; *olezcua*, made of wood. From the last the Castilians have formed their patronymic, and perhaps their abstract nouns; as *Fernandez*, Ferdinandson; *amarillez*, paleness. The Basque substantives have no sign to express the relation of gender. There is but one article, which is *a* for the singular, and *ac* for the plural. This sign forms the characteristic of nouns as to number, and is in all cases affixed to the substantive: as *guizona, man-the; guizonac, men-the.*

According to Astarloa, there are but six cases in the declension of the Basque words; but Bidassouet marks eleven. As the preposition is always affixed to the noun, there may be said to exist as many cases as there are prepositions. The verbs are divided into simple, or those expressing a single action, as *icassi*, to learn by oneself; double, as *i-ra-cassi*, to learn by the assistance of another; simple active, as *iltendot*, to kill: and active transitive, as *iltendeutzat*, to kill another. The moods are eleven, and the tenses, according to some Basque grammarians, amount to forty-six. Every verb can be conjugated in twenty-six forms, showing the different relations of the agent to the action and to the object which it affects.

The relation of the speaker to the person spoken to is also expressed by particular terminations. These relations are with regard to sex and dignity. Thus there are five different terminations, viz., masculine and feminine, from an inferior to a superior, and *vice versâ*, and also between equals.

The syntax is very simple, and subject to fixed rules. In every sentence the substantive is placed first, next the article, then the adjective, next the adverb, followed by the verb, and lastly the object, with the preposition affixed to it. Example:—*Seme oquer bat-ec emon-d-eus-cuz ardura-one ec;* the literal meaning 'son-crooked-one, given-us-has-to, cares-these;' which means, a bad son has caused these troubles to us. This order is that in which, generally speaking, an illiterate Basque places the words when he attempts to speak Spanish, for which reason the Spaniards call *Concordancia Vizcaina* a bad construction.

The Basque is divided into three dialects, not much differing from one another, viz., the Guipuzcoan, the Vizcaino, and the Labortan. The first is the purest, and is spoken in Guipuzcoa, the second in Vizcaya and Alava, and the Labortan in the French and Spanish Navarre. The only Basque books are grammars and dictionaries, the Bible, books of devotion, proverbs, and songs. In 1824 a very interesting work appeared at Donostian (San Sebastian), upon the antient usages, dances, games, and songs of the Guipuzcoans, published by Iztueta, the title of which is *Guipuzcoaco dantza, gogoangarrien, condaira, edo istoria beren*, &c. The same author published, in 1826, another work, entitled *The very Ancient Melodies of Viscaya*, &c. This work contains thirty-six airs to as many dances, with their respective words. M. Duhalde, a learned philologist of the Basque nation, has also published a work in which he has compared and contrasted the variations found in the different literary productions of the Basque provinces.

The best grammars are those of Lécluse in French, and Larramendi in Spanish. The latter author published also a dictionary in Spanish, Latin, and Basque, which is considered the best. Whoever wishes to investigate the very curious structure of the Basque language will derive great assistance from the labours of Lécluse, professor of Greek and Hebrew literature at Toulouse, who published a short dissertation upon the language in 1826, and also his grammar in the same year. Lécluse, in 1826, put forth a proposal for publishing a dictionary of the Basque, Spanish, and French, which it is much to be regretted did not meet with the encouragement which such a work merited.

(See Larramendi, *El Imposible vencido—Diccionario trilingue*, &c.; Erro, *Alphabeto primitivo*; Astarloa, *Apologia de la Lengua Bascongada*; Hervas, *Catálogo de las Lenguas*; W. Humboldt, *Inquiries respecting the First Inhabitants of Spain*, Berlin, 1821.)

BASRA, also called **BASSORA**, **BUSSORA**, and **BALSORA**, is the principal town of the Turkish pashalik of Basra, now accounted part of the pashalik of Bagdad. Basra is governed by a mutasallim, or lieutenant, in the name of the pasha of Bagdad. It is situated in 30° 25′ N. lat., 47° 35′ E. long., on the west bank of the Shatt-el-Arab. It is about seven English miles in circumference; but within this area there are extensive corn-fields and gardens of date-trees. Stone for building cannot be procured except at a great distance, and wood likewise is expensive. Only a few houses are built of burnt brick and mortar: the greater number of them, as well as the city wall, are made of sun-dried clay, which is sometimes covered over with burnt bricks. The town is extremely filthy. It has five gates: the Bâb-el-Robât, Bâb-Bagdâd, Bâb-Zobeir, Bâb-el-Serâjî, and Bâb-el-Majmûah. It is divided into seventy quarters (mahalle). The number of its inhabitants was supposed by Kinneir and Keppel to amount to about 60,000 souls, principally Arabs, Turks, and Armenians. Niebuhr, at an earlier date, estimated their number at no more than 40,000. The greater proportion are Mohammedans of the Sunni sect. There are also a few Banians, Armenians, and, at the time of Niebuhr's visit, there were about 100 Jewish families. The Shatt-el-Arab, which falls into the Persian Gulf 70 miles below Basra, is navigable as far as the city for ships of 500 tons burden. Its banks are covered with plantations of palm trees and rice-fields. The town is intersected by a number of little canals, filled twice every twenty-four hours by the tide in the Shatt-el-Arab, which rises nine feet. The principal of these canals, which is called Ashâr, intersects the district of Basra in a south-westerly direction. The division on its north-western bank is called Nadhrân. Many smaller canals run from the principal stream of the Ashâr towards the south-east, on which are placed other flourishing divisions of the district, which, in their aggregate, constitute what is now called Basra. (Mignan, *Travels in Chaldæa*, p. 271.)

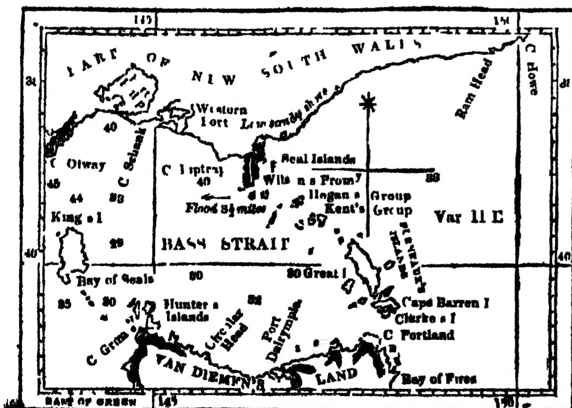
With the exception of the banks of the river, the country around Basra is entirely uncultivated, and towards the west and south the barren desert begins immediately at the walls of the town. 'Almost every inhabitant of Basra,' says Kinneir, 'is, in some way or other concerned in trade: and as this city is the grand emporium for all the Indian commodities sent into the Turkish empire, its commerce, it must be presumed, is very considerable. On an average, three or four English ships, of about 400 tons burden, arrive in the course of the year from Calcutta; but the chief part of the traffic is carried on in Arabian bottoms, and the merchants of Muscat now [1812] possess some of the finest vessels that navigate the Indian seas. The returns of Basra, for the produce of our dominions in Hindustan, are principally bullion, pearls, dates, copper, raw silk, horses, and gall-nuts.'

The town of Basra was founded by Otbah ben Gazwân, at the command of the caliph Omar ben Khittâb, in the year 635, or, according to others, 636 of our æra. (Reiske *Abulfedæ Annales Moslemici*, p. 67.) But this antient city was situated eight miles south-west of the present Basra, at the modern town of Zobeir, where its ruins are still to be found. It was built on the canal of Obollah, or Obillah which formerly proceeded from Hit, three days' journey north of Hilla, and ran parallel to the Euphrates, to the Gulf of Khor Abdallah (see the map in Niebuhr's *Reisebeschreibung*, tom. ii. p. 248): the bed of this canal, which is probably the antient Pallacopas, may still be traced. It appears that the antient town of Basra was deserted, and fell into decay in consequence of this canal being neglected. (Kinneir's *Memoir of the Persian Empire*, p. 290; Niebuhr *Reisebeschreibung nach Arabien*, &c. tom. ii. p. 209, &c. Keppel's *Journey from India to England*, vol. i. pp. 69-72.)

BASS, an island, or rather great rock in the Frith of Forth, about three miles from the shore, directly opposite the promontory upon which the antient fortress of Tantallon is situated. It appears to be principally composed of greenstone and trap-tuff. It is nearly of a round shape, not above the sixth of a mile in diameter, and above 300 feet above the surface of the sea. Towards the south, that is opposite the main-land, it declines with shelving rocks to the water, and there affords the only landing-place. Yet even here it is only accessible in calm weather, and not without danger even then to those who are unaccustomed to make good their landing by taking the opportunity

when the boat rises upon the top of a wave. Towards the west, north, and east, it rises perpendicularly out of the sea nearly 300 feet high, and in some places the precipices hang over. In other places the rock is excavated to a great depth by the waves there is one cavern which runs quite through the rock, and affords shelter to a vast number of wild pigeons. The sea is from 200 to 300 feet deep at the foot of the perpendicular cliffs, but is shallow on the south side where the rock declines There is a spring on the summit of the rock, which in former times supplied water to the garrison of a small castle. There is pasture for twenty or thirty sheep, and a small warren of rabbits, but the island is at present chiefly remarkable for being frequented by flocks of aquatic birds, which continue there during the summer, and almost cover the entire surface with their nests, eggs, and young Of the birds which frequent the rock, the solan geese (the *pelicanus bassanus* of Linnæus) are the most abundant and interesting They arrive in March and leave in September Some few generally stay about the island throughout the winter, which are supposed to be those that are too old to venture on the distant flight undertaken by the others They neither come nor go away all at one time, and it is observed that before the arrival of any division of the main body, a few come to the Bass who are supposed to have been despatched as scouts - Bass is the only island on the eastern coast of Britain which the solan goose frequents, probably on account of its elevated and precipitous sides It is difficult for the solan goose to rise from the level land, and it is noticed that those of the northern and western islands of Scotland to which it comes are of a similar structure to this of Bass Charles II purchased this island of the Lauder family, and in his reign and that of his successor, it was used as a state prison After the revolution of 1688 a desperate body of men took possession of it, and having a large boat which they hoisted up on the rock or let down at pleasure, they committed many acts of piracy, and it had the doubtful honour of being the last place in Great Britain which held out for James II These bold men were at last obliged to surrender in consequence of the loss of their boat and the failure of their usual supplies of provisions from France The place was soon after given to President Dalrymple, and is still possessed by his family (Walker s *Essays on Natural History and Rural Economy*, Gough s *Additions to Camden*, Carlisle s *Topographical Dictionary of Scotland*)

BASS STRAITS between New South Wales and Van Diemen s Land or Tasmania, were first discovered by an enterprising individual of that name in 1798, while on a sealing expedition from Port Jackson in an open boat.



[From the Admiralty Chart]

The nearest approach of Australia and Tasmania is between Wilson s Promontory to the north, and Circular Head to the south, the distance between which is 105 miles The greatest depth of water between these two points is about 270 feet, with a bottom composed of stones, sand, shells, and coral, but no deposit of mud. The prevailing winds are from the westward, and generally blow so strong, that vessels bound to the westward are often obliged to hazard the dangerous passage of Torres' Straits. The tide rises from eight to twelve feet, and runs at the rate of one and a half to three and a half miles an hour; the flood tide, flowing from the eastward, overcomes the current, which generally sets slowly in a contrary direction.

King's Island to the westward, and Furneaux's Group to the eastward, bound the straits, which within these limits are so thickly studded with islands and shoals, that although this passage is now much used by vessels as being by far the shorter route to the eastern shores of Australia, its navigation is, to say the least, critical and anxious. These islands abound in seals, sea-elephants, and other marine animals. They are much frequented by vessels from the colony, for the purpose of obtaining the skins of these animals from runaway convicts and refugees from Van Diemen s Land who have sought an asylum on the islands.

In December, 1826, a new establishment was founded at Western Port, between Port Philip and Wilson s Promontory, on the south coast of New South Wales. Independent of the advantages offered for settling here by the fertility of the soil, which is well watered by a navigable river, the Bass, and numerous tributaries, such a settlement is the more desirable, as there is no other anchorage for shipping on this side the Straits from Wilson s Promontory to Cape Howe, a distance of nearly 250 miles. It is also in contemplation to colonize King s Island. (King's *Australia*; Cunningham's *Two Years in New South Wales*)

BASSA, also called **BAFFA** or **BUFFA**, is the best port on that part of the coast of Guinea which is called the Grain coast, and is situated between the capes of Mesurado and Las Palmas. Bassa is about seventy or eighty miles from Cape Mesurado, and a few miles to the north-west of the American colony of Liberia, in about 7° N lat, and 10 20′ W long It was formerly much resorted to by trading vessels, especially when the pepper brought from the East Indies was not sufficient for the consumption of Europe, and the deficiency was made up by that sort of coarse pepper which the Dutch call *grains* and the Portuguese *sextos*, and which grows on this coast in great abundance In later times it was only occasionally resorted to by vessels trading to the contiguous coasts for slaves The country about it abounds in fruits, especially oranges, lemons, and bananas, and also in pastures, and cattle sheep, and goats, which furnish vessels with ample supplies (Lamarthe, *Voyage a la Cote de Guinea*)

BASSANO, a town of the Venetian States, in the province of Vicenza in Austrian Italy It is situated on a gentle declivity on the eastern or left bank of the river Brenta on the northern border of the great Paduan plain, and at the foot of the lower hills which rise gradually to the north and west of it towards the Alps of the Tyrol It is on the direct road from Padua to Trento, 21 miles N by W of Padua, and 15 N N E of Vicenza The town is joined to a suburb on the right bank of the Brenta by a handsome bridge, originally built by Palladio, and afterwards restored by the architect Ferracina Several of the churches of Bassano are decorated with paintings by Giacomo da Ponte, called 'Il Bassano, and his son Francesco, both natives of this town

The origin of Bassano is not known. It is first noticed in the history of the family of Eccelino, the lords of the March of Treviso, under the emperors of the house of Hohenstauffen The famous Eccelino da Romano, of cruel memory resided here some time, and built the tower which still goes by his name Francis I of Carrara, lord of Padua, embellished and fortified the town. It afterwards passed under the dominion of the Visconti of Milan, who gave it up in 1404 to the republic of Venice Under that republic Bassano and its territory formed a separate province, which was administered by a representative of the Senate, who was the political and military governor The internal civil administration was in the hands of a council of 60 nobles, chosen out of the same number of native patrician families Every year ten of the members of the council went out and were replaced by ten others out of the patrician body. This council elected the magistrates, the municipal officers, and one of the two judges of the civil and criminal courts This was the mode in which most of the towns in the Venetian States were administered. During the war of the league of Cambray against Venice, in the beginning of the sixteenth century, Bassano was taken and re-taken by the belligerents, and was plundered by the Emperor Maximilian s German soldiers It afterwards enjoyed peace for nearly three centuries, until Bonaparte seized upon it, in 1797, with the rest of the Venetian territory, and then gave it up to Austria by the peace of Campo Formio.

Bassano is a place of great trade: it has manufactures of woollen cloths, straw hats, and tanneries; and it exports a great quantity of silk, the produce of its own terri-

tory. Bassano contains, also, the printing establishment of Remondini, one of the largest in Italy, which has paper-mills annexed to it, as well as a school of engraving which has produced Volpato, Bartolozzi, Vendramini, and other celebrated engravers. Bassano has about 10,000 inhabitants. The country around is hilly, and covered with vines and olive trees, and interspersed with villages. About twelve miles north-east of Bassano, near the banks of the river Piave, is the village of Possagno, the birth-place of the sculptor Canova, who began there a handsome temple in the shape of a rotunda, in which he intended to be buried. He left it unfinished, but it has been continued by his brother, and must now be nearly completed. (Albrizzi, *Opere di Canova*; *Topografia Veneta*; Marucini, *Il Bassano*, &c.)

BASSA'NO (GIACOMO DA PONTE) was born at Bassano in 1510. He was instructed in the elementary principles of his art by his father, and was afterwards sent to Venice, where he studied under Bonifazio, whose mean jealousy withheld from him the instruction which he had stipulated to give. But in a city which abounded with the works of Titian, Parmegiano, and Tintoret, Bassano stood in little need of a particular master; he applied himself with intense assiduity to the general study of those great artists, and, in all that relates to mechanical practice, with extraordinary success; nor are evidences wanting that even in grandeur of style and conception he exhibited at that time a capacity which none who judge him by his later works would suppose him to have possessed. He painted, in front of the Casa Michelli, a fresco representing Sampson destroying the Philistines, parts of which, especially the figure of the hero himself, approximate to the grandeur of Michael Angelo. In the pictures of a Nativity and the Flight into Egypt (the latter for the church of St. Girolamo), he emulated the style of Titian with equal success.

These efforts, however, were but the results of momentary enthusiasm. Bassano's mind was essentially vulgar; he may, without impropriety, be denominated the Italian Rembrandt. The main characteristics of the Dutch artist all exist in the works of Bassano; gross vulgarity of character, absurd anachronisms in costume, glowing colour, concentrated chiar'oscuro, and not unfrequently a poetic feeling of effect, particularly in the management of the background, which is singularly at variance with the homely style of the figures. Bassano also painted portraits, and several of the most distinguished persons in Venice sat to him during his residence in that city, among them Sebastiano Venezio, the doge, Tasso, and Ariosto (see Bryan). On the death of his father he returned to Bassano and took possession of his paternal residence, situated on the picturesque banks of the Brenta. He resided here during the remainder of his life; and his style of landscape, drawn from the scenery which surrounded him, gives an air of grandeur even to his least successful performances; his horizons are usually high, and terminate in a range of blue mountains, illuminated by the rising or setting sun. With little power of selection, Bassano had surprising facility in representing whatever he saw. He delighted in rural subjects and their accompaniments, and such was his fondness for painting cattle, that he sometimes introduced them without the least attention to propriety; in the picture of Christ driving the money-changers from the temple, in the Doria palace at Rome, a herd of oxen is seen escaping among the intruders. Exteriors and interiors of country-inns were also favourite subjects with Bassano; these he often makes the site for some historical or scriptural subject, but the principal characters are always made subordinate; groups of peasants, the hostess, or the cook, busy among her kitchen utensils, domestic animals, or still life, occupy the foreground; and the principal light usually catches on some very inferior object,—a dog, a white napkin, or a brass kettle. Little, however, is lost by this want of subordination, nor is any wish excited to see the superior actors brought more forward; for Bassano, as Sir Joshua Reynolds observes, 'painted the boors of the district of Bassano, and called them patriarchs and prophets.' His animals are touched with admirable truth and discrimination; and in spite of all his defects, such is the spirit, clearness, and decision of his touch, the depth and richness of his tones, and the general picturesqueness of his effects, that his works not only commanded the respect of contemporary artists, but have been always valued by judges of painting for qualities so important in the art. Bassano painted with extraordinary dispatch, and such of his works as were not commissioned were sent for sale to the neighbouring towns of Vicenza, Brescia, Treviso, and Padua, where they found ready purchasers. His fame rose so high that he was invited by the Emperor Rodolph II. to settle at his court, but Bassano's attachment to his established habits of life induced him to decline this proposal: he painted for that monarch pictures of the twelve months and the four seasons of the year.

In a few instances during his latter practice Bassano showed that the feeling for grand design which he had manifested in his youth was not quite extinguished. His altar-pieces of the entombing of Christ, in the church of Sta. Maria in Vanzo, at Padua, St. Roche interceding with the Virgin for the people infected with the plague, at Vicenza, and the picture of the seizure of Christ in the garden, are distinguished not only by a sublimity in the general effect, but by a grandeur in the character of the figures, resembling the style of the Roman school. Bassano died in 1592. There is a prodigious number of his pictures in the palaces of Rome and Venice, and they are frequently seen in English collections. There are many engravings from his works.

BASSANO (FRANCESCO DA PONTE) was the son of the preceding, and a painter of considerable merit. Giacomo Da Ponte had four sons who followed his profession. Francesco, the eldest, born in 1548, is called the *younger Bassano*; he studied with his father and practised in Venice, where he obtained considerable reputation by various altar-pieces, one in particular of St. Apollonia, in the church of Sta. Afra, at Brescia. But his most distinguished performances were a series of pictures painted for the ducal palace at Venice, commemorative of the leading events in the history of the republic. Francesco threw himself from a window in a fit of delirium, and died on the spot, in 1591.

Giovanni Da Ponte was the second son of Giacomo, and born in 1553. He is chiefly known as a copyist of his father's works, which he imitated with such accuracy, that his copies are scarcely distinguishable from the originals: he died in 1613.

Leandro Da Ponte was the third son of Giacomo, born in 1558. He distinguished himself as a portrait-painter, and was knighted by the Doge Grimani, who sat to him. He painted historical and sacred subjects occasionally; among the best are the Birth of the Virgin and the Resuscitation of Lazarus, the former in the church of Sta. Sophia, the latter in that of La Carità, at Venice. Leandro died in 1623.

Girolamo Da Ponte was the youngest son of Giacomo, born in 1560. He was much employed by his father in copying, but contributed an original performance, an altar-piece of great merit, of St. Barbara and the Virgin, to the church of S. Giovanni at Bassano: he died in 1622. The same style predominates in the works of all the Bassanos, which exhibit, with the exception of a few pictures, much more of the manual than the mental capacity of art. (Lanzi; Bryan's *Dict. of Painters and Engravers*.)

END OF VOLUME THE THIRD.

[illegible] William Clowes and Sons, Duke-street, Stamford-street, Lambeth.